

**ANALYSIS ON IMPACT OF PRECEDING EDUCATIONAL PERFORMANCE ON
THE RESULTS ACQUIRED IN HIGHER STUDY**

MONIR HOSSAIN

MASTER OF ENGINEERING

NOAKHALI SCIENCE AND TECHNOLOGY
UNIVERSITY

**ANALYSIS ON IMPACT OF PRECEDING EDUCATIONAL PERFORMANCE ON
THE RESULTS ACQUIRED IN HIGHER STUDY**

MONIR HOSSAIN

Thesis submitted in fulfilment of the requirements for the award of
the degree of Master of Engineering in Information and
Communication Engineering

Department of Information and Communication Engineering

**NOAKHALI SCIENCE AND TECHNOLOGY
UNIVERSITY**

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SUPERVISOR'S DECLARATION

I hereby declare that I have checked this thesis and in my opinion this thesis is adequate in terms of scope and quality for the award of the degree of Masters of Engineering in Information and Communication Engineering.

DR. MD. ASHIKUR RAHMAN KHAN

PROFESSOR & CHAIRMAN

DEPARTMENT OF INFORMATION AND COMMUNICATION ENGINEERING (ICE)

NOAKHALI SCIENCE AND TECHNOLOGY UNIVERSITY (NSTU)

DATE:

STUDENT'S DECLARATION

This thesis report is submitted to the Dept. of Information and Communication Engineering (ICE), Noakhali Science and Technology University (NSTU) in partial fulfillment of the requirements for having the M.E. degree in ICE. This is also needed to certify that the thesis work is under the M.E. course of ICE, NSTU. So, I hereby declare that this thesis report has not been submitted elsewhere for the requirement of any kind of degree, diploma or publication.

MONIR HOSSAIN

ID: ASH1711ME123M

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DATE:

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ABSTRACT

Academic performance has been one of the most important goals of the educational process. Academic achievement is a key mechanism through which adolescents learn about their talents, abilities and competencies which are an important part of developing career aspiration. It is also a major goal, which every individual is expected to perform in all cultures. Many researches have been conducted to investigate factors affecting students' performance in university and colleges. The aim of this research is that determine the impact of students academic result in school and college on student's performance in university level. We determine the effect of SSC and HSC result in honor's result. We find out the importance of various subject including Mathematics, Chemistry, Physics and Biology by determine individual impact on honors result in department of engineering and biology faculty. We also analysis the university honor's result categorized by gender, department, SSC board and university admission merit. The research is based on student records based on the dataset collected through assessment from university databases. Data analysis technique- statistical analysis technique was used to extract useful information from the database using Rapid Miner software. The results obtained by using various charts like scatter, multiple scatter and bar charts. This analysis result helped to find out many useful information based on which proper guidance and suggestions are designed for students. Students will know more that which subject should be given more importance. Students will also see examples of good results in university without getting good results in the past and they will be more energetic to good results.

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CHAPTER 1

INTRODUCTION

1.1 Background

Academic achievement occupies a very important place in education as well as in the learning process. It has become an index of child's future in this highly competitive world. It has been one of the most important goals of the educational process. It is also a major goal, which every individual is expected to perform in all cultures. Academic achievement is a key mechanism through which adolescents learn about their talents, abilities and competencies which are an important part of developing career aspiration. One of the most important outcomes of any educational set up is achievement of the students. Depending on the level of achievement, individuals are characterized as high achievers, average and low achievers. Achievement in educational institution may be taken to mean any desirable learning that is observed in the student. Academic achievement of pupils refers to the knowledge attained and skills developed in the school subjects. So academic achievement means the achievement of pupils in the academic subjects. The main concern of all educational efforts is to see that the learner achieves. Academic achievement is generally regarded as the display of knowledge attained or skills developed in the school subject. It is the level of performance in school subject as exhibited by an individual. In the school setting, it is referred to as the exhibition of knowledge attained or skills developed in school subjects. Test scores or marks assigned by teachers are indicators of this achievement. Recently, it can be observed that educational psychologists have begun to address what has historically been regarded as the soft side of individual differences. This includes mood, feelings and emotions in relation to academic achievement - away in which students function and perform in accordance with the anticipated tasks at hand. However, achievement can be said to be the outcome of instruction and also stated that achievement is the end product of a learning experience. Attaining a high level of academic performance is what every parent or guardian as well as teacher wishes for their children,

wards and students. Schools and teachers are generally graded qualitatively by achievement based on the performance of their students. In educational institutions, success is measured by academic performance or how well a student meets standards set by the educational institution. As a carrier, competition grows ever fiercer in the working world, the importance of students doing well in schools has caught the attention of parents, legislations and government education departments alike. Although education is not the only road to success in the working world, much effort is made to identify, evaluate track and encourage the progress of students in schools. Parents care about their child's academic performance because they believe good academic results will provide more carrier choice and job security. Schools though invested in same reason are also often influenced by concerns about the school's reputation and the possibility of monetary aid from government institutions, which can hinge on the overall academic performance of the school. The state and central department of education are charged with improving schools, and so devised methods of measuring success in order to create plans for improvement[1,2,3].

School,colleges and universities have no worth without student. Students are most essential asset for any educational institute. The social and economic development of the country is directly linked with student academic performance. The students' performance (academic achievement) plays an important role in producing the best quality graduates who will become great leader and manpower for the country thus responsible for the country's economic and social development. Student academic performance measurement has received considerable attention in previous research, it is challenging aspects of academic literature, and science student performance are affected due to social, psychological, economic, environmental and personal factors. These factors strongly influence on the student performance, but these factors vary from person to person and country to country. That's a reason the researcher find out such factors that effecting student performance, especially in rural areas where student face lot of problem. Previously mostly study of student academic performance conducting on such issues like gender difference, teacher's education and teaching style, class environment, socio economic factor and family education background. The finding of this study varies from region to region and their results differ in cities and rural areas. This research is focuses on the public university students' academic result. We measure the impact of SSC and HSC result, individual effect of Mathematics, Chemistry, Physics and Biology on university honors result [4,5,6,7].

1.2 Problem Statement

Performance in any educational institution is something which everyone expects to be of higher quality because of the roles the sector plays to provide service to the community, on the other hand those who failed to perform better cannot contribute well to the human resources because they don't have skill needed. For better performance students find out the factor including study environment, family stress, friend's interaction, mental power, teacher's quality, extra curriculum activities, uses of internet and so on. These factors have shown that in some cases good result are possible. Studying according to the decision of these fields has given much better results. After that not giving importance only to the right subject many students can't study in their desired subject, if a few could chance to admit their desired subject but they don't capable of doing good result .To overcome this problem in this work shown which level of education and which subject should be given the most importance using data mining of previous academic result data[13,14].

1.3 OBJECTIVES

- Examine the effect of previous academic results.
- Find out impact of HSC Math GPA.
- Find out impact of HSC Chemistry GPA.
- Determine impact of HSC Physics.
- Determine impact of HSC Biology.
- Compare the gender impact.
- To give useful information for students result.
- To give effective solution through proper suggestions and guidance.

1.4 SCOPE AND LIMITATION OF THE STUDY

This study will focus on the effect of previous academic result on university academic performance and the effect of gender, department and SSC board on university academic performance. Impact of such factors were measure using various charts like scatter and bar charts of data mining process. This work will help to make a decision for subject choose and good academic result. Students will know which has better effect between SSC and HSC GPA,

individually which subject impact more effective. This work will show better results can be obtained by studying which department. Also find out the effect of SSC board on academic result in university. This work will help making good academic performance by analyzing some crucial point of various factor. Error data and quota system admission is the main complexities of result analysis [15,16].

1.5 ORGANIZATION OF THE REPORT

The rest of this dissertation is comprised of four chapters: the literature review, research methodology, results and discussion, and conclusions. Chapter 2 reviews past research about academic performance of students in various educational institution. This past research determined the various factors which have impact on students academic result and has been shown the relation between factors and academic results, which situation students get good results and which case students get low results. This previous research also provide various information to perform good academic result in college and university. Chapter 3 describes the details of used databases, working procedure and methodology. It describes the details of data minning procedure which has been used for result analysis. Scatter charts, scatter multiple charts and bar charts used for analyzing the impact of previous result, gender, department and SSC board. Chapter 4 presents the results, relation of university honors result and previous academic result. A study of university honors result and analysis categorized by gender, department, SSC board. Provide information and given various decision about doing good result. Chapter 5 reports the conclusions and recommendations for future work[17,18].

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The purpose of this chapter is to provide a review of past research efforts related with student's academic performance in graduation results have been the area of interest for higher education institutions. Investigation of factors related to the academic performance of university students become a topic of growing interest in higher educational circle. Many recent studies were carried out to explore factors that affecting university student's academic performance. There are numerous factors which affect the academic performance and retention of students in higher education institutions. We discuss those important factors which we used in this study. The justification of the factors with existing literature is given below.

2.2 ICT Adoption Impact on Students' Academic Performance

In 2018 Wael Sh. Basri , Jehan A. Alandejani, and Feras M. Almadani determine the impact of ICT adoption in educational institution. These study investigates and explores the adoption of information communication technology by the universities and the impact it makes on the university students' academic performance. The findings reveal that there exists a relationship between ICT adoption and academic performance in a conservative environment. An additional finding also stated that ICT adoption resulted in the improvement of the performance of female students more than the male[12].

2.3 Teaching style, English language and communication, students' academic stress

July 2019 Abdelnaser Omran and Mohamed Saad Hamad Saleh find out the effect of Communication, learning facilities, proper guidance and family stress in academic performance. This study revealed that teaching style, English language and communication, language assessment, students' academic stress, students' self-concept are all playing a significant role on the students' academic performance at College of Business, Universiti Utara Malaysia. As the students' academic stress, the study has concluded that pressure from parents and parents' involvement were significantly the most associated factors with students' academic performance.

Irfan Mushtaq & Shabana Nawaz Khan in June 2012 also determine the effect of communication, learning facilities, proper guidance and family stress on students performance. The research is based on student profile developed on the bases of information and data collected through assessment from students of a group of private colleges[19,20,21].

3.3 The Effect of Rewards and Motivation on Student Achievement

In summer 1996 Lori Kay Baranek *Grand Valley State University* a review of research is conducted to examine the effect of rewards on intrinsic motivation and learning for children in general education and special education. Intrinsically motivated students experience school success because they display

behaviors such as choosing challenging activities and spending more time on task. In 2017 Charles Gbollie and Harriett Pearl Keamu research the role of motivation, strategies, and perceived factors hindering Liberian junior and senior high school students learning. The results showed the motivational belief component of extrinsic goal orientation as the most preferred belief and test anxiety was the least possessed belief[22].

2.4 Student Performance

Galiher (2006) and Darling (2005), used GPA to measure student performance because they main focus in on the student performance for the particular semester. Some other researchers used test results or previous year result since they are studying performance for the specific

subject or year (Hijazi and Naqvi, 2006 and Hake, 1998).

2.5 Communication

Many researchers has been discussed the different factors that affects the student academic performance in their research. There are two types of factors that affect the students' academic performance. These are internal and external classroom factors and these factors strongly affect the students' performance. Internal classroom factors includes students competence in English, class schedules, class size, English text books, class test results, learning facilities, homework, environment of the class, complexity of the course material, teachers role in the class, technology used in the class and exams systems. External classroom factors include extracurricular activities, family problems, work and financial, social and other problems. Research studies shows that students' performance depends on many factors such as learning facilities, gender and age differences, etc. that can affect student performance (Hansen, Joe B., 2000). Harb and El-Shaarawi (2006) found that the most important factor with positive effect on students' performance is student's competence in English. If the students have strong communication skills and have strong grip on English, it increases the performance of the students. The performance of the student is affected by communication skills; it is possible to see communication as a variable which may be positively related to performance of the student in open learning. A major distinction of this study from previous studies is that it focuses on open learning (Abdullah AL-Mutairi, 2011).

2.6 Learning Facilities

Karemera (2003) found that students' performance is significantly correlated with satisfaction with academic environment and the facilities of library, computer lab and etc. in the institution. With regard to background variables, he found a positive effect of high school performance and school achievement he found no statistical evidence of significant association between family income level and academic performance of the student. Robert & Sampson (2011), found that the member of educational board will be educated and their impact on school is positive, for professional development it is essential for student learning. The students who are actively engage in the learning process are observed to have a positive correlation with the CGP. A Study effort from student and the proper use of the facilities provided by the institution

to the student, a good match between students' learning style and are positively affect the student's performance (Norhidayah Ali, et. al., 2009) Young (1999), held the view that student performances are linked with use of library and level of their parental education. The use of the library positively affected the student performance. The academic environment is the effectivevariable for students and has positive relationship with fathers' education and grade level (Kirmani & Siddiquah, 2008).

2.7 Proper Guidance

Noble (2006), students' academic accomplishments and activities, perceptions of their coping strategies and positive attributions, and background characteristics (i.e., family income, parents' level of education, guidance from parents and number of negative situations in the home) were indirectly related to their composite scores, through academic achievement in high school. The students face a lot of problems in developing positive study attitudes and study habits. Guidance is of the factor through which a student can improve his study attitudes and study habits and is directly proportional to academic achievement. The students who are properly guided by their parents have performed well in the exams. The guidance from the teacher also affects the student performance. The guidance from the parents and the teachers indirectly affect the performance of the students (Hussain, 2006).

2.8 The Impact of Classroom Behaviors and Student Attention on Written Expression

January 2017 Narmene Hamsho Syracuse University research The Impact of Classroom Behaviors and Student Attention on Written Expression This study sought to examine classroom behaviors and attention as predictors of writing performance among third-grade students receiving a Tier 1 performance feedback intervention. Information about the classroom behavior of 80 third grade students (39 males, 41 females) was collected before intervention began through use of two teacher report measures: the Academic Performance Rating Scale (APRS; DuPaul, Rapport, & Perriello, 1991) and the inattention factor on the Strengths and Weaknesses of ADHD Symptoms and Normal Behavior Rating Scale (SWAN; Swanson et al., 2006). Results indicated that the APRS and SWAN were significant predictors of writing fluency in the combined sample of participants. When

examining gender differences between these predictors, the APRS and SWAN were identified to be significant predictors for writing fluency among female students. No behavioral predictors were found to be significantly associated with any of the writing measures for male students, and no behavioral predictors were found to be significantly associated with writing productivity for any of the participants. Results from this study offer some guidance regarding the underlying factors that contribute to writing performance within the context of academic interventions[25,26].

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

This chapter gives an outline of research methods that were followed in the study. It provides information on the datasets, the software requirement and basic terminologies used in the study. This chapter describes the research methods that were chosen for the purpose of this study and the reasons for this choice. The requirements of this work is also described and the procedures that were followed to carry out this study are included.

.

3.2 DATA SET

Primary data has been collected from Engineering and Biology faculty students of Noakhali Science and Technology University. Engineering faculties department where data has been collected are Computer Science and Technology Engineering(CSTE), Applied Chemistry and Chemical Engineering(ACCE), Applied Mathematics(AM), Information and Communication Engineering(ICE) and Biology faculties are Microbiology, Food Technology and Nutrition Science (FTNS), Pharmacy, Fisheries and Marine Science (FIMS). Data has been collected from university admission database and graduation result database. 630 students data were using for analysis procedure where approximately 27.46% are female data and 72.54% are male data.

In table 3.1 presented data in various field like exam_Roll, Adm_merit, fullname,gender, HSC_Math_GPA,HSC_Chem_GPA,HSC_Phy_GPA,HSC_Bio_GPA,HSC_GPA,SSC_GPA, Hon_CGPA, Hon_merit, ms_CGPA, hon_stu_id.

Data was categorised by department. While testing in software for analysis data furnished

ascending order by Math GPA, chemistry GPA, physics GPA, biology GPA, SSC GPA, HSC GPA for every individual testing.

In table 3.2 shown the statistics of which data is used in this study. In SSC minimum GPA 4.1, maximum 5 and average GPA 4.95. In HSC level minimum GPA 4, maximum 5 and average GPA 4.8. Moreover, honors level in university minimum CGPA 2.4, maximum 3.96 and average CGPA 3.32 [23,24].

Table 3.1: Sample data set used for students performance analysis.

Fullname	Gender	HSC_Math GPA	HSC_Chem GPA	HSC_Physics GPA	HSC_Biology GPA	HSC_GPA	SSC_GPA	hon_CGPA
ISMAIL HOSSAIN	M	4	4	4	4	4	5	2.51
DILWAR HASAN	M	5	4	5	4	4	4.5	2.54
BAPPY PAUL	M	5	4	4	4	4	4.31	2.55
MD. ABDUR NUR	M	5	4	4	4	4	5	2.62
TANJENA AZIM	F	4	4	5	4	4	5	2.89
ROYAL CHANDRA DAS	M	5	4	5	4	4	5	2.71
RONY SHAHA	M	4	4	4	5	4	4.69	2.72
SHIHAB HASAN	M	5	5	4	5	4	5	2.74
MD.HAFIZUR RAHMAN	M	4	4	5	5	4	4.88	2.75
MD. GOLAM AZAM	M	4	4	3	5	4	5	2.76

Table 3.2: Statistics of Sample Data Set used for students' performance Analysis

Name	Type	Statistics		
		Minimum	Maximum	Average
Gender	Polynomial	173(Female)	457(Male)	
HSC Math GPA	Real	3	5	4.726
HSC Physics GPA	Real	3	5	4.571
HSC Chemistry GPA	Real	3	5	4.555
HSC Biology GPA	Real	3	5	4.700
HSC GPA	Real	4	5	4.829
SSC GPA	Real	4.13	5	4.948
Honors CGPA	Real	2.41	3.96	3.321
Department	Polynomial	27(AM)	98(CSTE)	

3.3 DATA PROCESSING

Data analysis involves organizing what we have observed, heard and read, to make sense of the acquired knowledge. They maintain that, as one does so he/she categorizes, synthesizes, search for patterns and interprets the data collected. Data analysis as a systematic process involving working with data, organizing and breaking them into manageable units. It is also concerned with synthesizing data, searching patterns, discovering what is important, what is to be learned and deciding what to tell others.

The research is conducted by using the procedure data analysis technique- statistical analysis, Statistical Analysis shows "What happen?" by using past data in the form of dashboards. Statistical Analysis includes collection, Analysis, interpretation, presentation, and modeling of data. It analyses a set of data or a sample of data. There are two categories of this type of Analysis - Descriptive Analysis and Inferential Analysis.

Descriptive analyses complete data or a sample of summarized numerical data. It shows mean and deviation for continuous data whereas percentage and frequency for categorical data.

Inferential analyses sample from complete data. In this type of Analysis, you can find different conclusions from the same data by selecting different samples.

Scatter and scatter multiple charts used for analysis impact of HSC subjective results, SSC and HSC GPA impact, Gender effect. Bar chart used for measuring impact of department and SSC board on honors result. Mean, Standard deviation, maximum, minimum, correlation and regression analysis are used through appropriate statistical package [10, 11, 27, 28].

3.4 DATA ANALYSIS

Confirmatory Factor Analysis(CFA) is used to provide a confirmatory test of our measurement theory. A measurement theory specifies how measured variables logically and systematically represent constructs involved in a theoretical model. In confirmatory factor analysis theory is a systematic set of casual relationships that provide the comprehensive explanation of a phenomenon. In confirmatory factor analysis (CFA), model is a specified set of dependant relationships that can be used to test the theory. In confirmatory factor analysis (CFA), is used to test structural equations. The path diagram shows the graphical representation of cause and effect relationships of the theory. In confirmatory factor analysis (CFA), endogenous variables are the resulting variables that are a causal relationship and exogenous variables are the predictor variables. In confirmatory factor analysis (CFA), identification is used to test whether or not there are a sufficient number of equations to solve the unknown coefficient. In confirmatory factor analysis (CFA) identifications are of three types: (1) under identified,(2) exact identified, and (3) over-identified. In confirmatory factor analysis (CFA), goodness of fit is the degree to which the observed input matrix is predicted by the estimated model [8,9,29,30,31].

3.5 ETHICAL CONSIDERATION

It is the need of the researcher to observe the principle of ethics when conducting research. This is because there could be some danger the respondents may experience or harm if their views are known to their superiors. Furthermore, it is not recommended to violet the right of individuals for the reason of searching knowledge. So the researcher in the first place needs to establish an informed consent to ask the respondents to respond willingly and without being forced. Then, since it is not possible to estimate the danger the respondents may experience the researcher has to change the name by giving them codes and protect them for any harm or

embarrassment from those superiors. In this study the respondents' names were hidden and the respondents were asked to participate willingly and anyone who was not interested was allowed to withdraw at any time during research processes[25,26].

CHAPTER 4

RESULTS AND DISCUSSION

4.1 INTRODUCTION

This Chapter presents the findings of the study; the findings are presented under five themes. First theme is the effect of individual subject including Mathematics, Physics,

Chemistry and Biology result in HSC on university honor's result. Second theme is the impact of SSC and HSC GPA. Gender effect is discussed in third theme. In fourth and five theme university honor's result was analysed respectively categorized by department and SSC board. HSC Math, Physics, Chemistry and Biology GPA impact on honors result refers to we actually calculated the students those were doing good result in HSC Math, Physics, Chemistry and Biology they have been able to get good results. In the case of gender effect, it was shown the effect of gender on SSC GPA, HSC GPA and honors CGPA. Then compare the effect of gender in three section. Students academic result in honors level compare department wise and measured the effect of department in university honors result. SSC board impact means that it was determined which board students doing good result in in university level.

4.2 ENGINEERING FACULTY

4.2.1 Effect of Score of Mathematics on Honors Result

Using data of Math GPA in HSC and Honors CGPA in university were calculated the effect of HSC Math GPA on university honors result. Figure 4.1 shown the impact of HSC Math GPA on honors result by classified honors result in three section – Average result , upper result and under result of average result. HSC result divided in two categories – GPA 4 and GPA 5 . Students are segregated based on HSC GPA. We show that about 165 students get GPA-4 in HSC Math and the rest of students of total 630 students get GPA-5. Whom got GPA-4 in HSC Math most of them achieved CGPA under average CGPA in honors result. On the contrary most of the students whom got GPA-5 in HSC Math acquired upper CGPA of average CGPA.

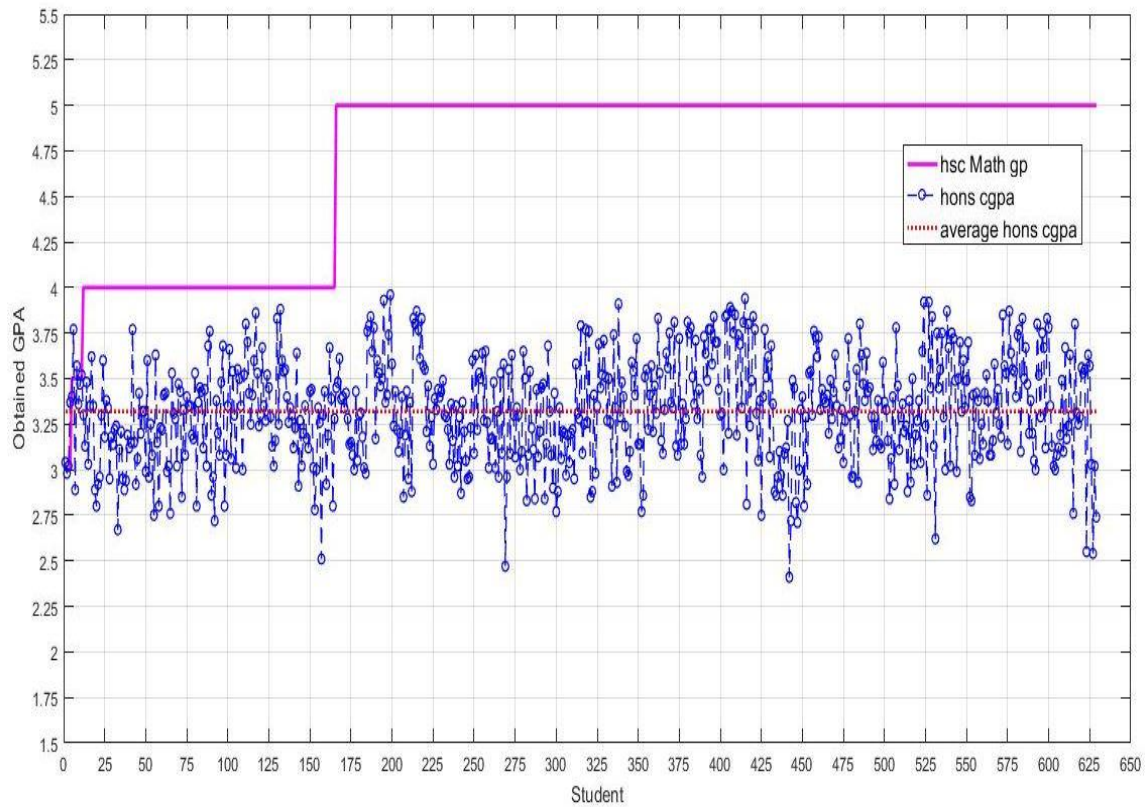


Figure 4.1: Effect of score of Mathematics on performance of honors

In Figure 4.2 shown that, the effect of HSC Math GPA on honors result by using scatter charts. HSC Math GPA classified in 3.0,3.5,4.0,5.0 section. From the figure we noticed that highest mark get in honors result who got GPA 5 in HSC Math. Students who get the lowest GPA in honors those are also GPA 5 in HSC math.

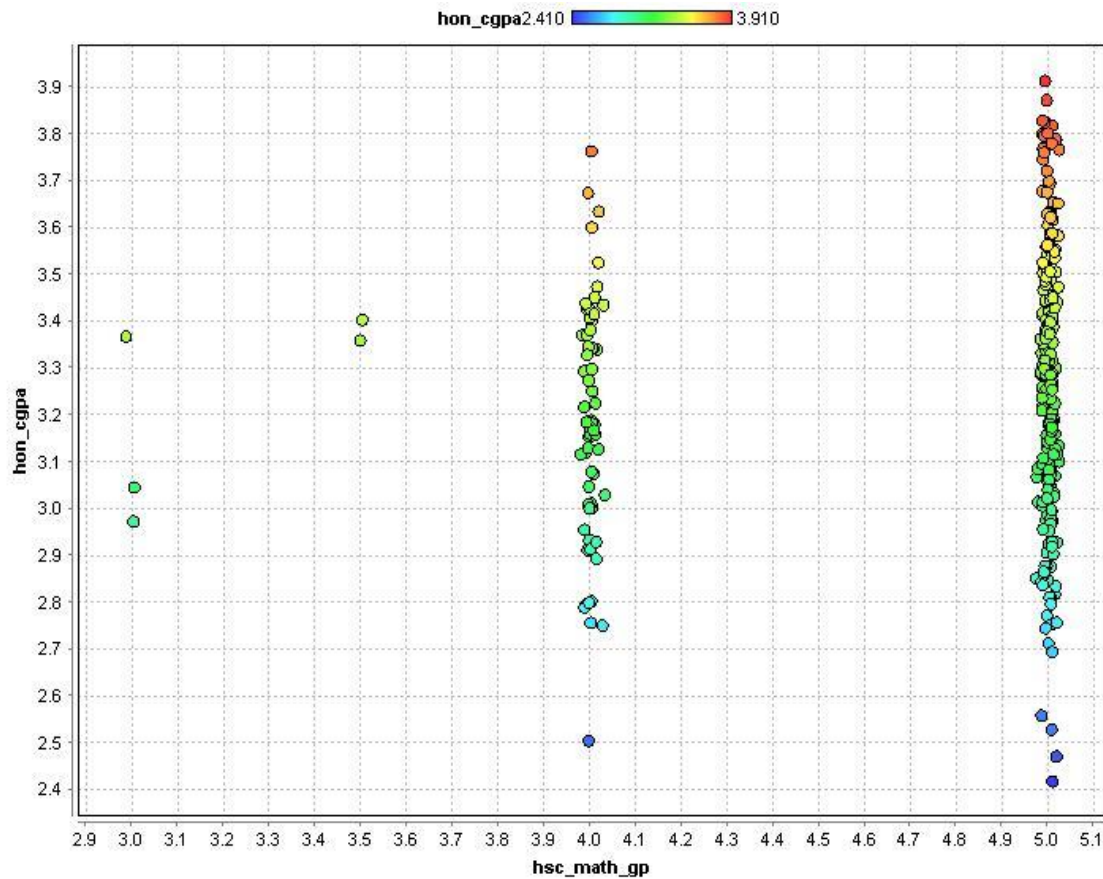


Figure 4.2 : Effect of HSC Math GPA on **bar chat** university honors result

More details analysis impact on honors result of HSC Math GPA are shown in Table 4.1. This Table shows comparative analysis of honors result relatively HSC Math GPA. Students are divided in three section there are GPA-5, GPA-4 and under the GPA-4 holder. Honors CGPA are also shown in three parts there are under 3 CGPA , 3 to 3.49 and 3.5 to 4.0 CGPA .We can said that under 3 GPA is low, 3 to 3.49 is medium and 3.5 to 4 is high GPA. About 32% students get CGPA high in honors result those are get GPA 5 in HSC Math and it is the highest portion. About 19% students get high CGPA who are get GPA 4 in HSC Math. Nearly 27% students get high CGPA who get GPA under 4 in HSC Math.

Table 4.1: Result impact of HSC Math GPA on university honors result

HSC Math GPA range	Number of students	Honors CGPA range		
		Number of student obtained CGPA of 2.4—2.99	Number of student obtained CGPA of 3.0—3.49	Number of student obtained CGPA of 3.5—4.00
3-3.5	5	2 , which is 18.18%	6, which is 54.55%	3, which is 27.27%
4	63	27, which is 17.53%	98, which is 63.63%	29, which is 18.83%
5	215	58, which is 12.47%	259, which is 55.70%	147, which is 31.61%

4.2.2 Effect of Score of Physics on Honors Result

In Figure 4.3 and Figure 4.4 shown the HSC Physics GPA effect on university honors result using respectively scatter plot chart and scatter chart. From the figure 4.3 we noticed that, 255 students get GPA 4 in HSC Physics from which 124 students get CGPA above average CGPA and 131 students get CGPA under average CGPA. There are 375 students get GPA 5 in HSC Physics from which 217 students get CGPA above average CGPA and 158 students get CGPA under average CGPA. From figure 4.4 we show that lowest CGPA in honors get those students who get GPA 4 in HSC Physics. But the highest CGPA in honors get those students who get GPA 5 in HSC Physics.

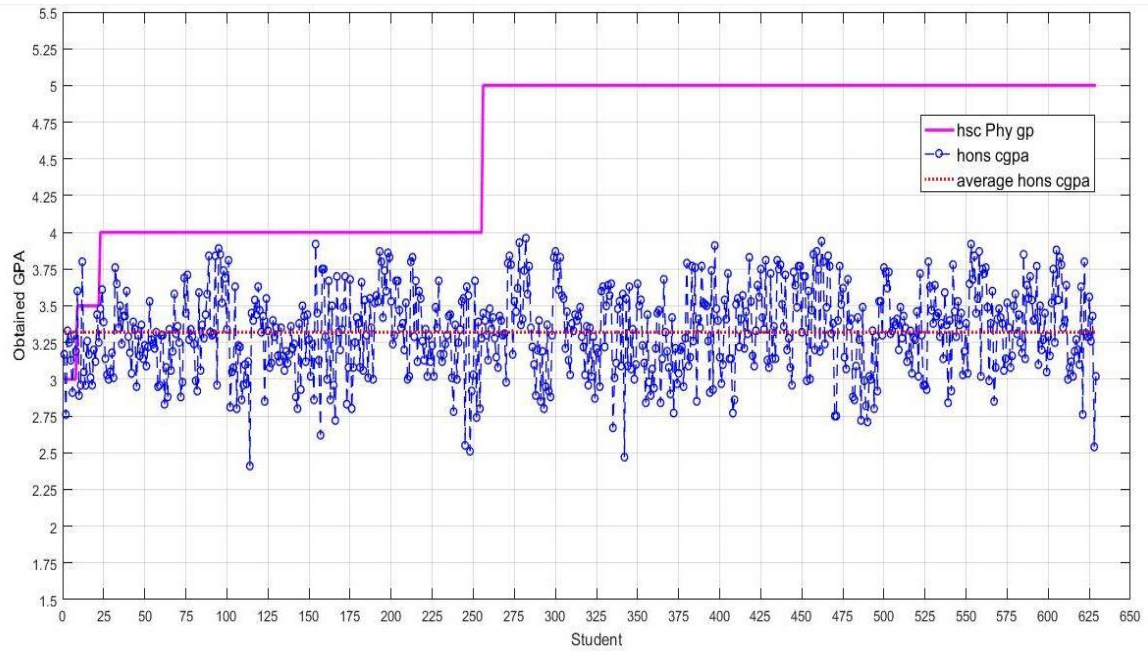


Figure 4.3: Effect of HSC Physics GPA on university honors result

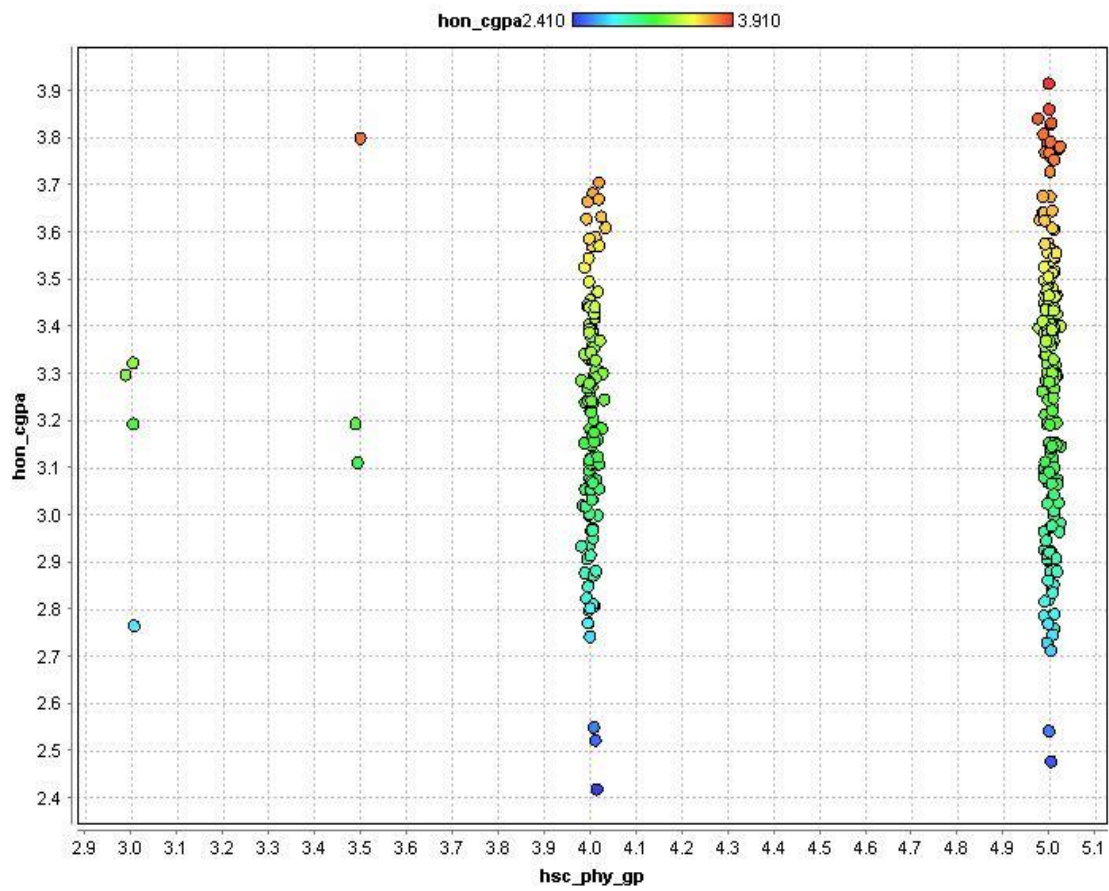


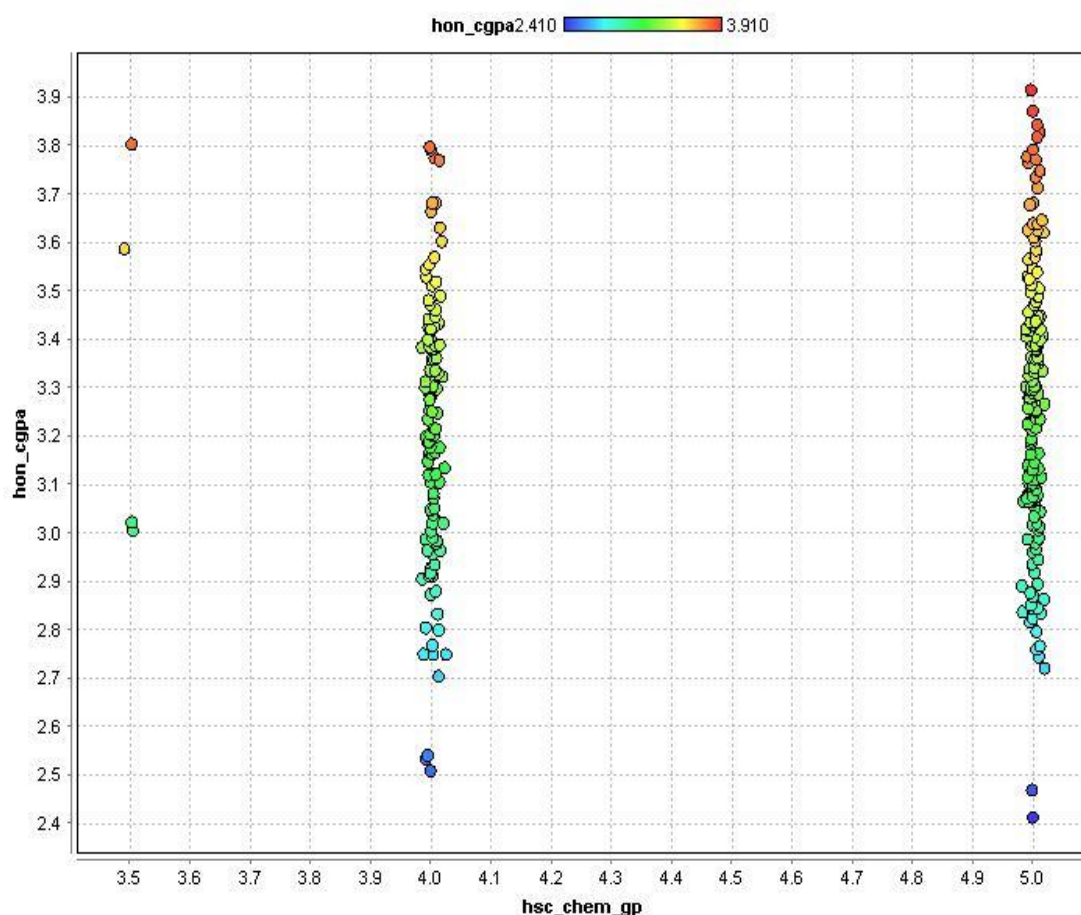
Figure 4.4: Effect of HSC Physics GPA on university honors result

In Table 4.2 shown that statistical analysis effect on honors result of HSC Physics GPA. Only 9% students get high CGPA in honors result who get GPA under 4 in HSC Physics and at the same time the rate of deterioration was also high. On the other hand most numbers of students get high CGPA who get GPA 5 in HSC physics and only 13.33% students them acquired low CGPA in honors.

Table 4.2: Result impact of HSC Physics GPA on university honors result

HSC Physics GPA range	Number of students	Honors CGPA range		
		Number of student obtained CGPA of 2.4–2.99	Number of student obtained CGPA of 3.0–3.49	Number of student obtained CGPA of 3.5–4.0
3-3.5	7	1 , which is 14.28%	5, which is 71.43%	1, which is 14.29%
4	112	23, which is 20.54%	75, which is 66.96%	14, which is 12.5%
5	164	30, which is 18.29%	95, which is 57.93%	39, which is 23.78%

4.2.3 EFFECT OF HSC CHEMISTRY GPA ON ENGINEERING FACULTY



4.3 BIOLOGICAL SCIENCE FACULTY

4.3.1 Effect of Score of Chemistry on Honors Result

In Figure 4.3(a) described the effect of HSC Chemistry GPA on honors result. There are 273 students get GPA 4 in HSC Chemistry from which 135 students get CGPA under average CGPA in honors and 138 students get CGPA upwards average CGPA in honors. Using scatter chart described the impact of HSC Chemistry on honors result in Figure 4.3(b). The lowest CGPA acquired by students who get GPA 5 in Chemistry but the lowest GPA holder in HSC Chemistry are also get CGPA upwards 3. Also show that in HSC Chemistry GPA 4 and GPA 5 holder students get nearly same result in honors.

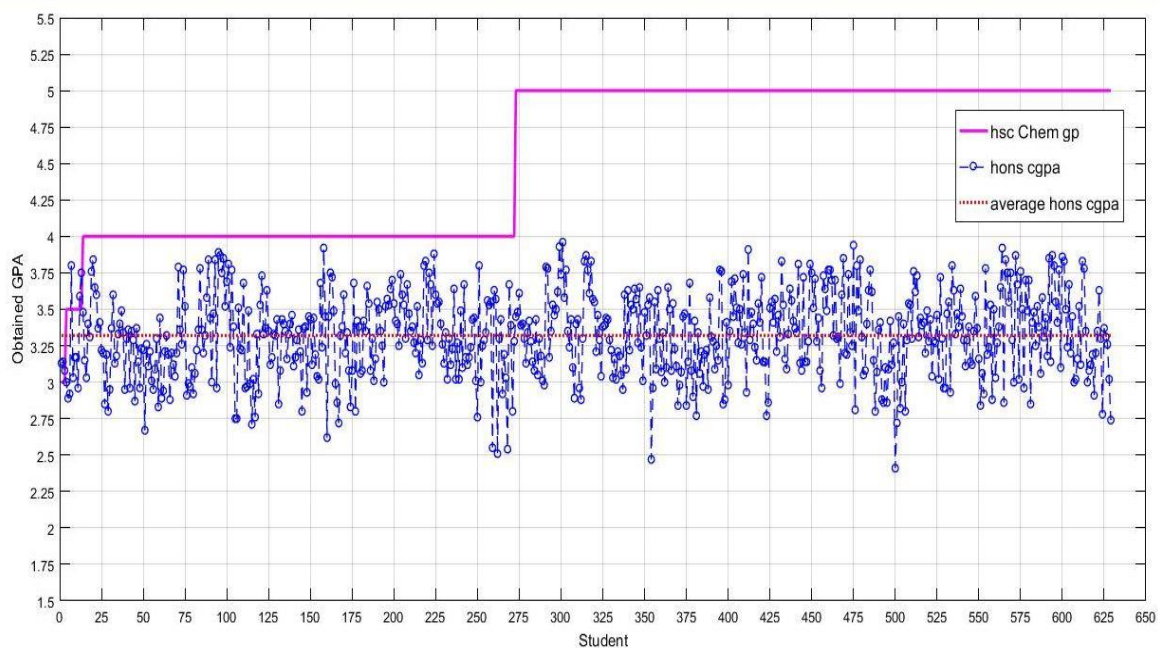


Figure 4.3(a): Effect of HSC Chemistry GPA on university honors result

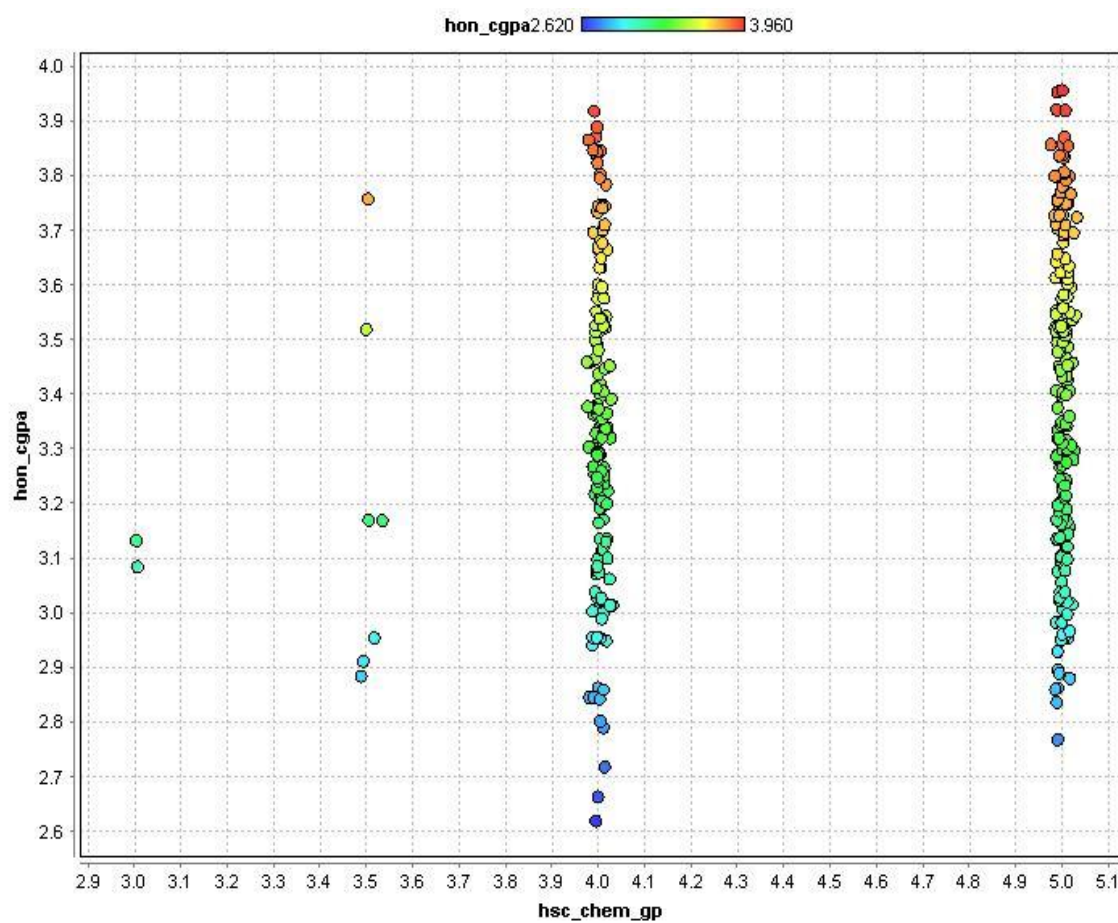


Figure 4.3(b): Effect of HSC Chemistry GPA on university honors result

In Table 4.3 analysis information are described about effect of HSC Chemistry GPA on honors result. About 32% students get high CGPA and only 12% students achieved low CGPA in honors result. We noticed that the students who get GPA under 4 and GPA 4 in HSC Chemistry they acquired nearly same rate of high CGPA. But GPA 4 holder students in HSC Chemistry get low CGPA is most number than GPA under 4 holder students.

Table 4.3: Result impact of HSC Chemistry GPA on university honors result

HSC Chemistry GPA range	Number of students	Honors CGPA range		
		Number of student obtained CGPA of 2.4–2.99	Number of student obtained CGPA of 3.0–3.49	Number of student obtained CGPA of 3.5–4.0
3-3.5	11	3 , which is 23.08%	7, which is 53.84%	3, which is 23.08%
4	148	41, which is 15.83%	155, which is 59.85%	63, which is 24.32%
5	191	43, which is 12.01%	201, which is 56.15%	114, which is 31.84%

4.3.2 Effect of Score Of Biology on Honors Result

In Figure 4.4(a) shown the impact on honors result of HSC Biology GPA using scatter plot chart. There are 184 students get GPA under 5 in HSC Biology from which 82 students get higher CGPA and 82 students get lower CGPA from average CGPA. The rest 445 students get GPA 5 in HSC Biology from there are 258 students get higher and 187 students get lower CGPA from average CGPA. Figure 4.4(b) described the effect of HSC Biology on honors CGPA. We observed that both lowest and the highest CGPA get in honors who got GPA 5 in HSC Biology. But GPA 4 holder students in HSC Biology couldn't do much better in honors. They get average CGPA in honors result comparatively than those get GPA 5 in HSC Biology.

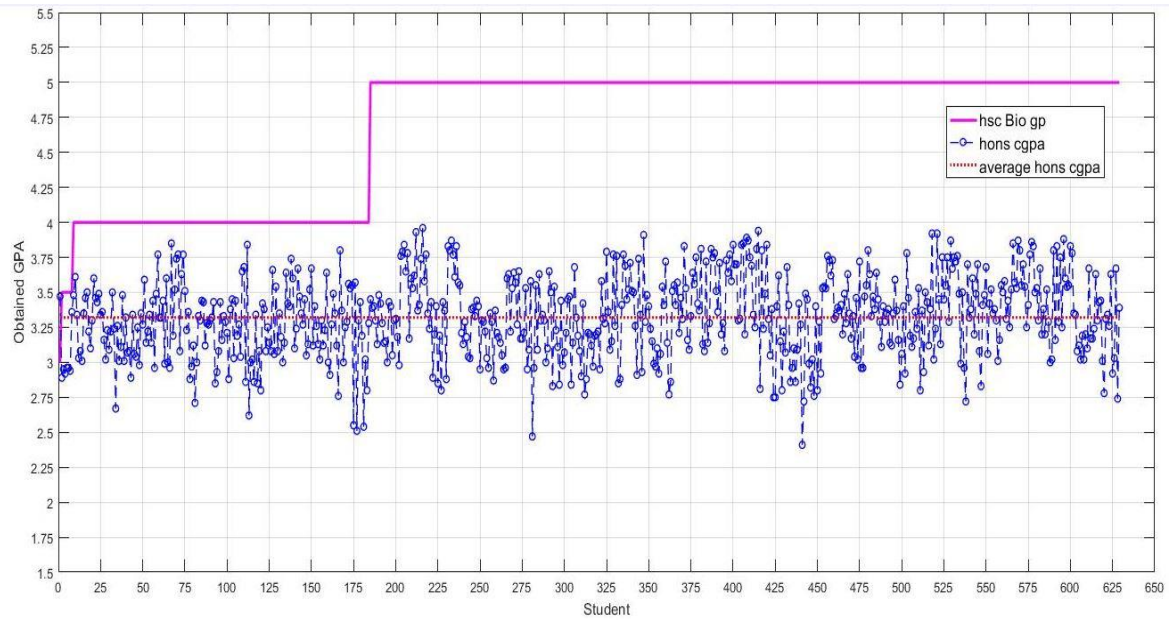


Figure 4.4(a): Effect of HSC Biology GPA on university honors result

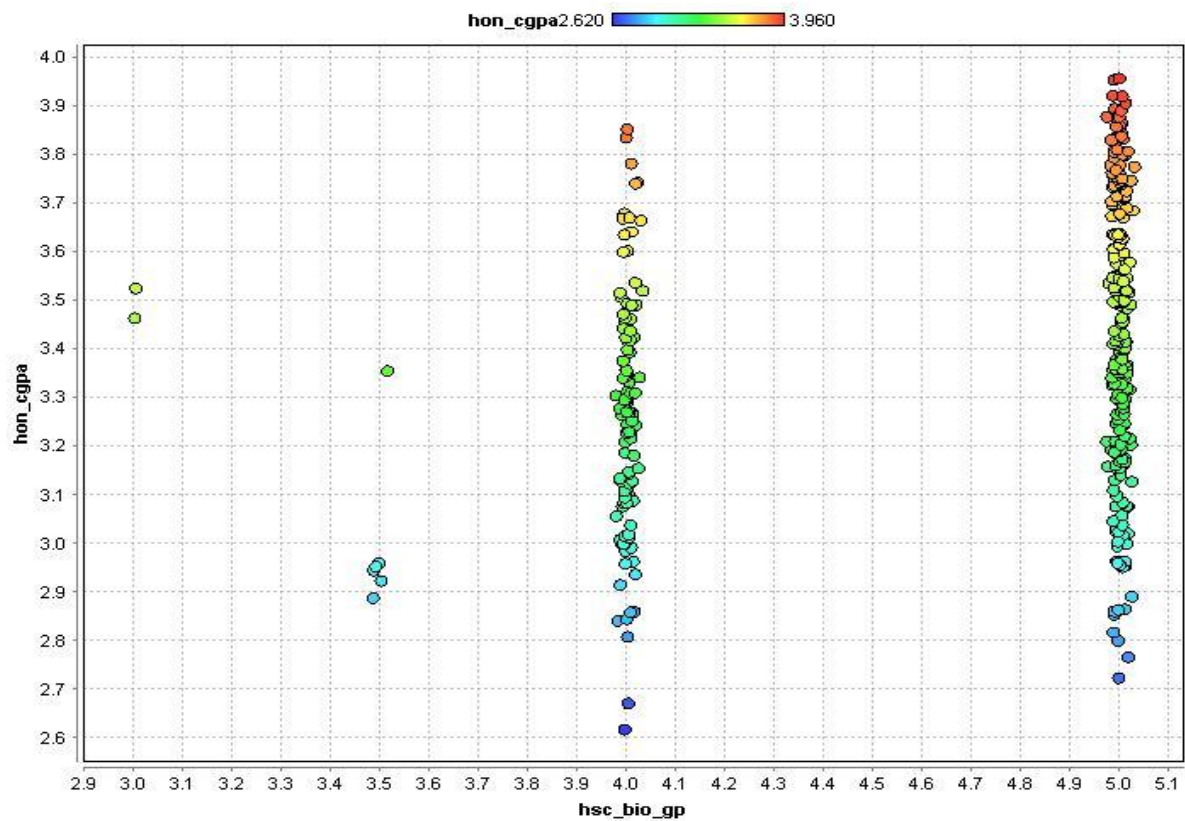


Figure 4.4(b): Effect of HSC Biology GPA on university honors result

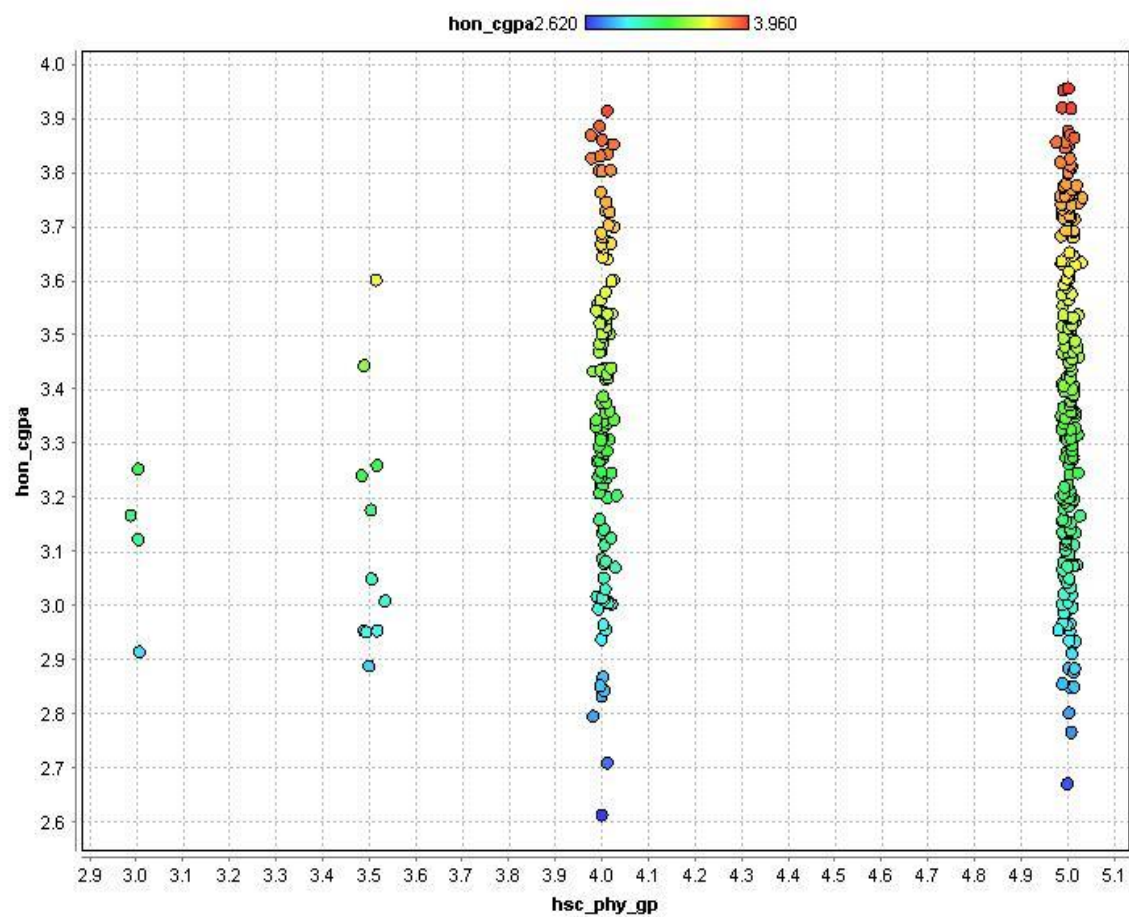
Statistical analysis of impact on honors CGPA of HSC Biology are presented in Table 4.4 . Students who achieved GPA under 4 in HSC Biology 25% students get low CGPA, 75%

students get medium CGPA and no one can get high CGPA in honors result. About 70% students get medium CGPA in honors those are achieved GPA 4 in HSC Biology. About 34% students get high CGPA in honors and only 13% students get low CGPA in honors who get GPA 5 in HSC Biology.

Table 4.4: Result impact of HSC Biology GPA on university honors result

HSC Biology GPA range	Number of students	Honors CGPA range		
		Number of student obtained CGPA of 2.4–2.99	Number of student obtained CGPA of 3.0–3.49	Number of student obtained CGPA of 3.5–4.0
3-3.5	8	2 , which is 25%	6, which is 75%	0
4	106	23, which is 13.07%	122, which is 69.32%	31, which is 17.61%
5	236	58, which is 13.00%	239, which is 53.59%	149, which is 33.41%

4.3.3 EFFECT OF HSC PHYSICS GPA ON BIOLOGICAL SCIENCE FACULTY



4.4 COMPARISON BETWEEN ENGINEERING AND SCIENCE FACULTY

4.4.1 Based on Score of Physics

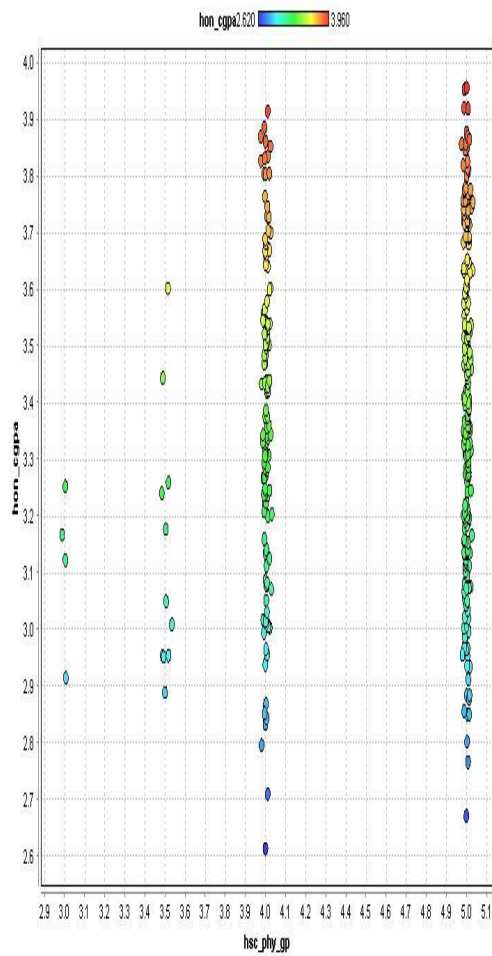


Fig: 4. Biological Science faculty

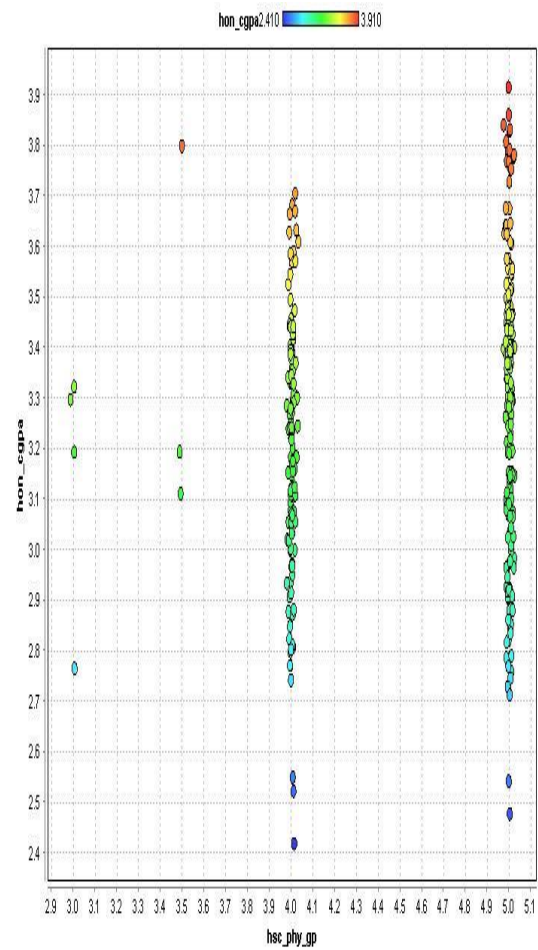


Fig: 4. Engineering faculty

4.4.1 BASED ON HSC CHEMISTRY GPA

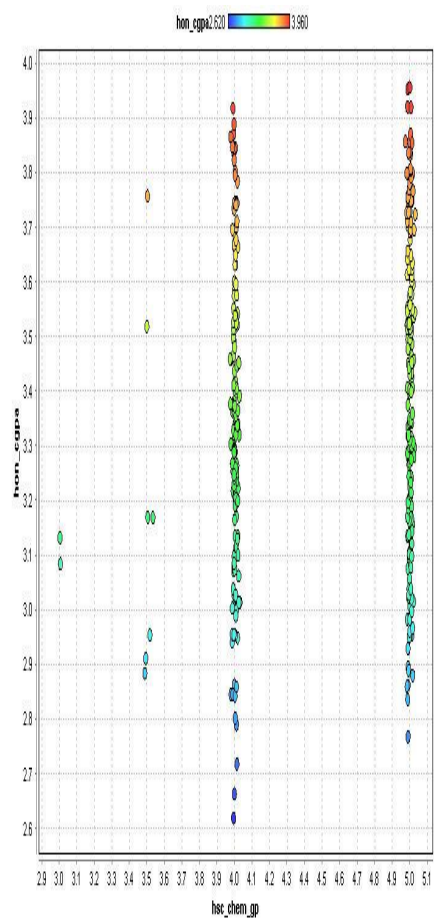


Fig: 4 . Biological Science faculty

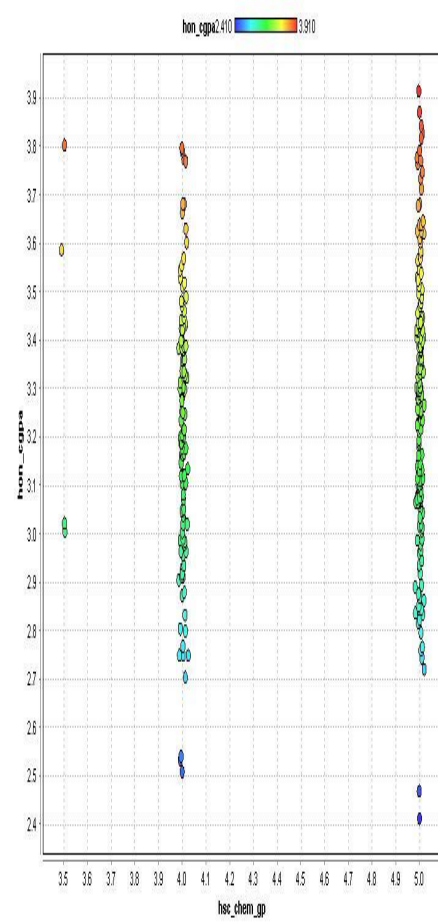


Fig: 4. Engineering faculty

4.4.1 BASED ON HSC MATH GPA

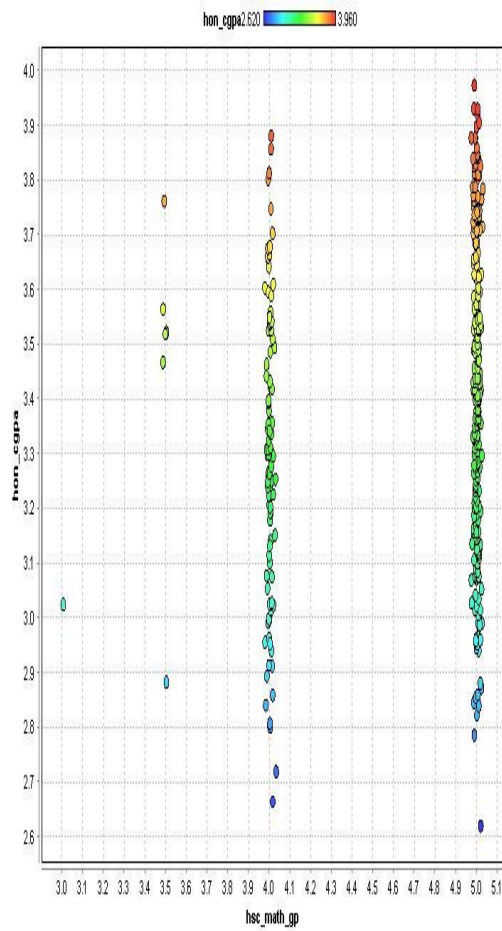


Fig: 4 . Biological Science faculty

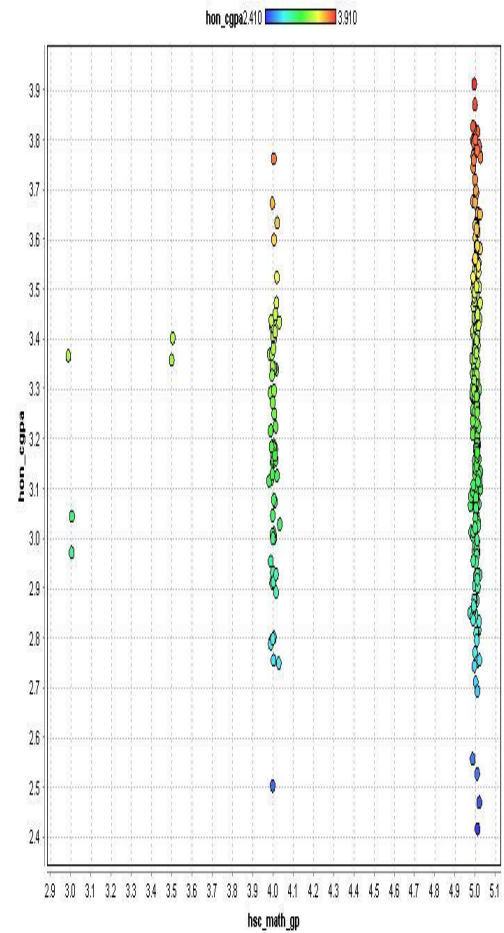


Fig: 4. Engineering faculty

4.6 EFFECT OF SSC RESULT ON UNIVERSITY HONORS RESULT

In Figure 4.5(a) described that the effect of SSC GPA on university honors result using scatter plot chart. In Figure 4.5(b) also shown the effect of SSC GPA on honors result using scatter chart. There are 138 students get GPA under 4 in SSC and rest of 492 students get GPA 5 in SSC. From Figure 4.5(a) we see that most of the GPA 5 holder students in SSC achieved higher CGPA than average CGPA in honors result. On the other side, GPA under 4 holder students in SSC majority part get CGPA under average CGPA.

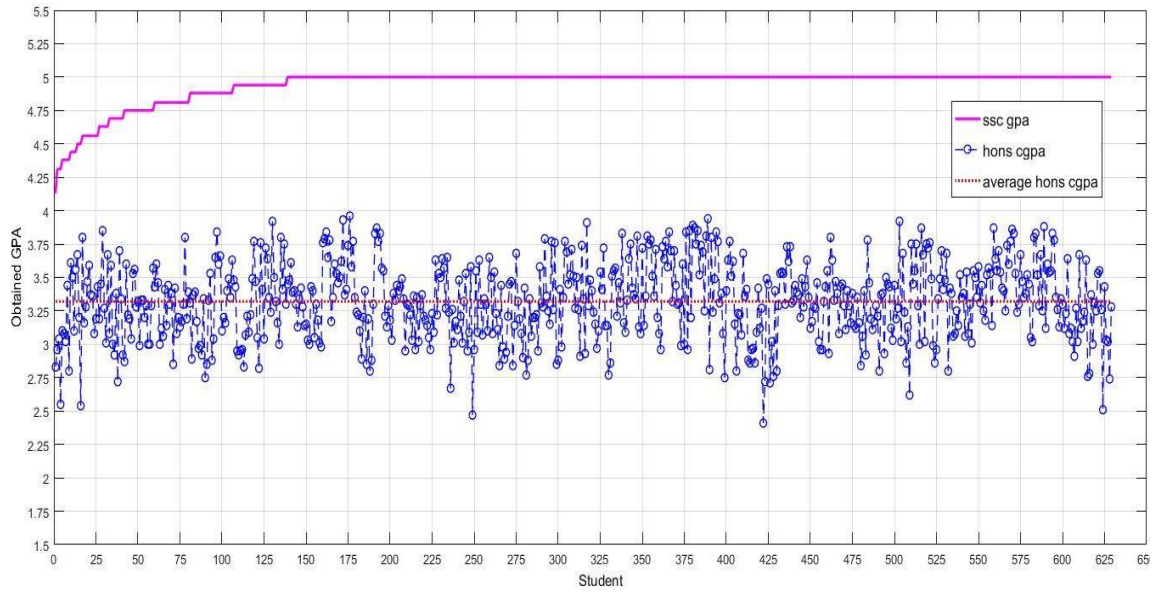


Figure 4.5(a): Effect of SSC GPA on honors CGPA

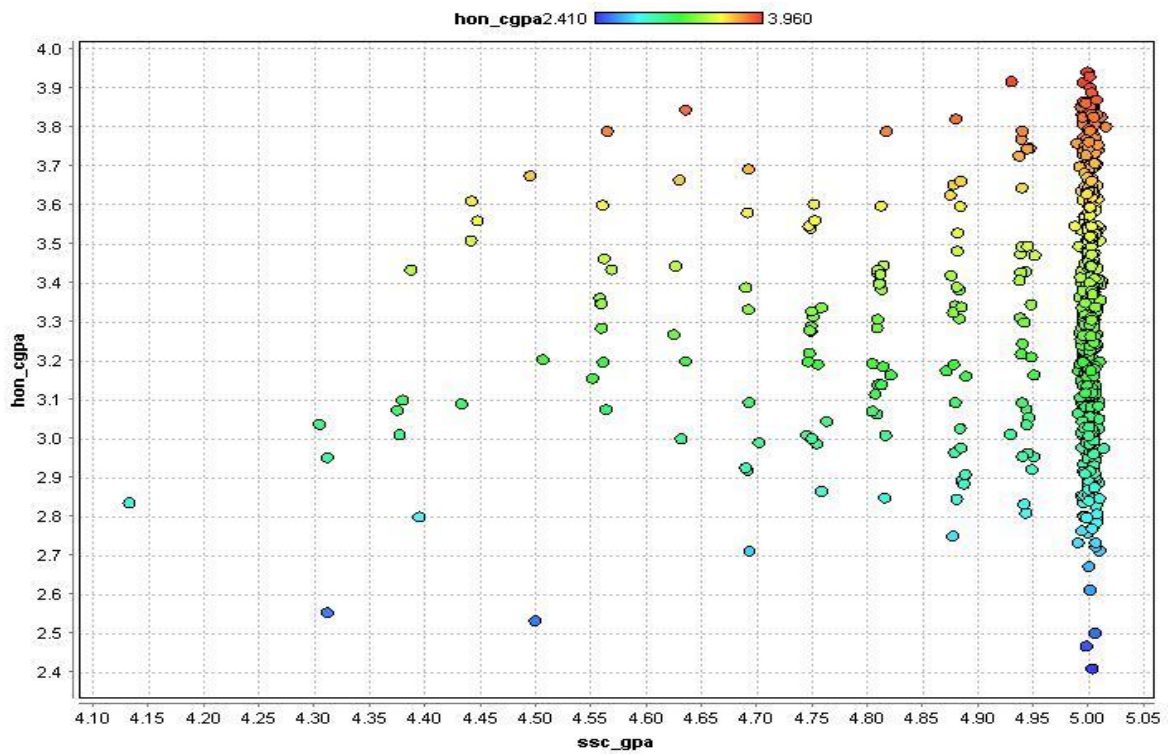


Figure 4.5(b): Effect of SSC GPA on honors CGPA

From Figure 4.5(b) we noticed that, highest CGPA and lowest CGPA in honors get the students who get GPA 5 in SSC. The students who get under GPA 5 in SSC, most of the students get average and under average CGPA in honors. Few numbers of students acquired

higher result in honors. In table 4.5 shown that statistical information about impact of SSC GPA on honors result. The students who get GPA 5 in SSC there are about 13% students got low CGPA, 58% students got medium CGPA and 30% students got higher CGPA. On the contrary, the students who got GPA under 4 in SSC there are 17% students got low CGPA, 62% students got medium CGPA and 22% students got high CGPA in university honors result.

Table-4.5: Result table of effect of SSC GPA on university honors result

Categorized by	Total Students number	Honors CGPA range		
		Number of student obtained low CGPA	Number of student obtained medium CGPA	Number of student obtained high CGPA
SSC	138 which is	24 , which is	84, which is	30. which is
Grade-A	21.9% total students	17.39%	60.87%	21.74%
SSC	492 which is	63, which is	279, which is	150, which is
Grade-A+	78.1% total students	12.80%	56.71%	30.49%

- Low = CGPA range in 2.4 --- 2.99
- Medium = CGPA range in 3.0 — 3.49
- High = CGPA range in 5 — 4.0
- Grade A = GPA range in 4 — 4.9
- Grade A + = GPA 5

4.7 EFFECT OF HSC RESULT ON UNIVERSITY HONORS RESULT

Effect of HSC result on university honors result described in Figure 4.6(a) using scatter plot graphs. There are about 280 students got GPA under 5 and 350 students got GPA 5 in HSC level. We noticed that, most of the students got CGPA around the average CGPA those are got under 5 GPA in HSC. On the other hand GPA 5 holder students most of the numbers got higher CGPA than average CGPA.

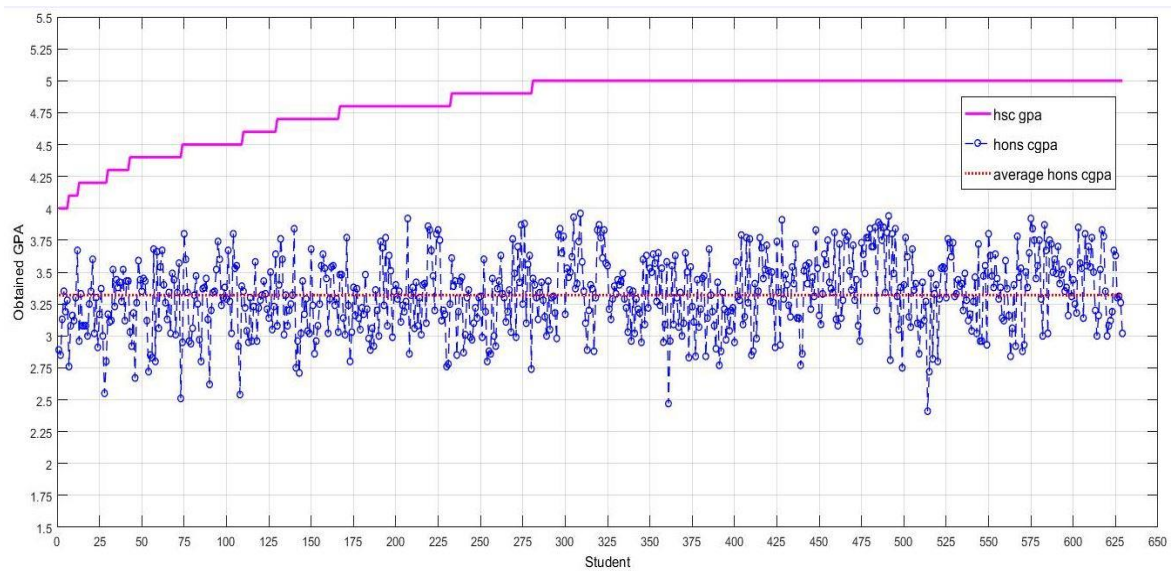


Figure 4.6(a): Effect of HSC GPA on honors CGPA

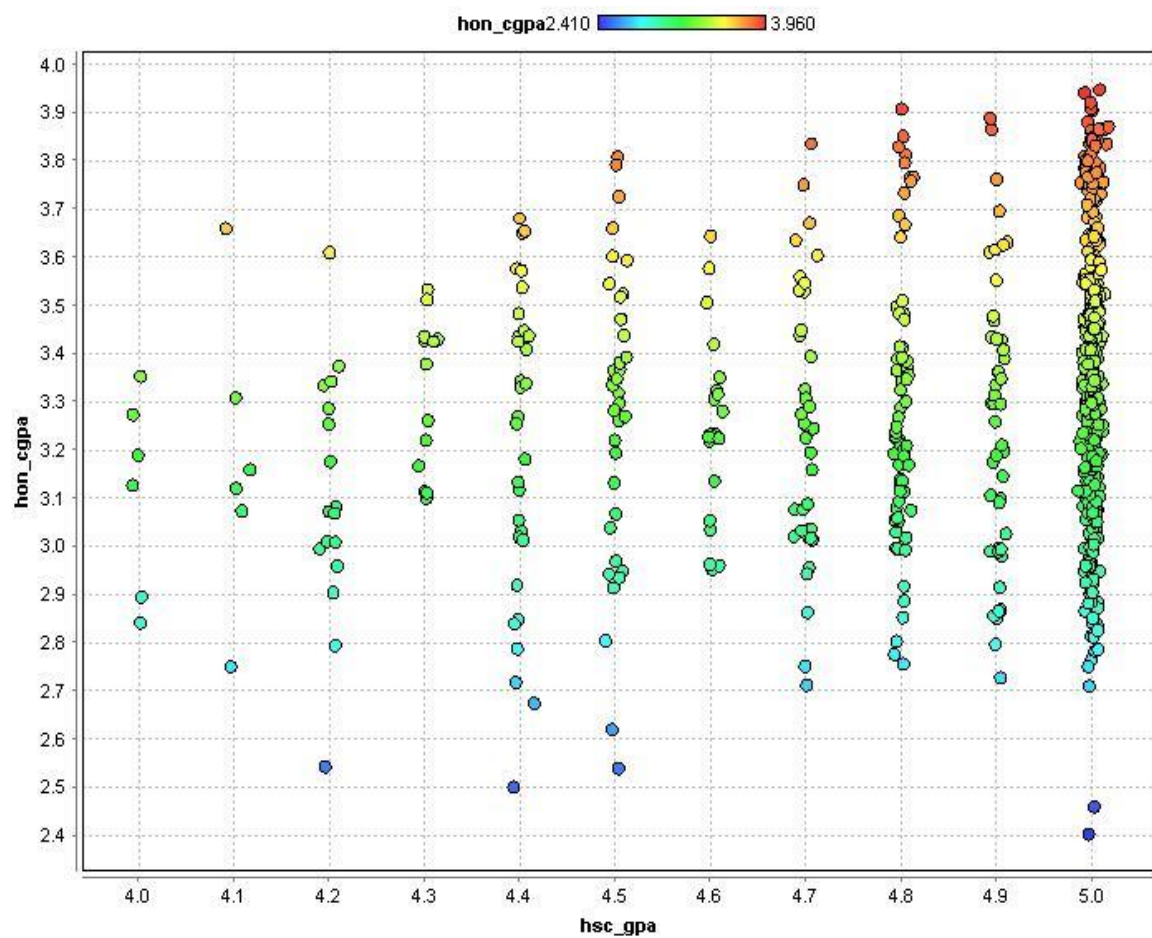


Figure 4.6(b): Effect of HSC GPA on honors CGPA

In Figure 4.6(b) using scatter graph described the effect of HSC result on university honors result. A significant number of students those were not GPA 5 in HSC level were achieved good result in honors level.

From table 4.6 we show that the students who got GPA 5 in HSC 11% students got low CGPA, 53% got medium CGPA and 36% got high CGPA in honors result. The students those got GPA under 5 there are about 17% got low CGPA, 64% students got medium CGPA and only 19% students got high CGPA in university honors result.

Table-4.6: Result table of effect of HSC GPA on university honors result

Categorized by	Total Students number	Honors CGPA range		
		Number of student obtained low CGPA	Number of student obtained medium CGPA	Number of student obtained high CGPA
HSC Grade-A	280 which is 44.44% total students	49, which is 17.5%	178, which is 63.57%	53. which is 18.93%
HSC Grade-A+	350 which is 55.56% total students	39, which is 11.14%	185, which is 52.86%	126, which is 36%

From the Figure 4.6(b) we see that have a variation in HSC result. From the table-4.5 aboutt 45% students get GPA-4 and about 55% student get GPA-5, which is nearly fifty-fifty. On the other part, in SSC GPA most of the students get GPA 5. From the table 4.2(b) ,we see that only 21.9% students get GPA 4 and 78.1% students get GPA 5. I think relatively low result in HSC level because HSC level is more competitive than SSC level.

4.8 EFFECT OF GENDER ON UNIVERSITY HONORS RESULT

Using scatter plot grap the effect of gender on honors result is shown in figure 4.7(a). It was noticed that most of the female students got CGPA upper average CGPA, only few numbers of students got CGPA under average CGPA. On the other side majority part of male students

got CGPA under average CGPA.

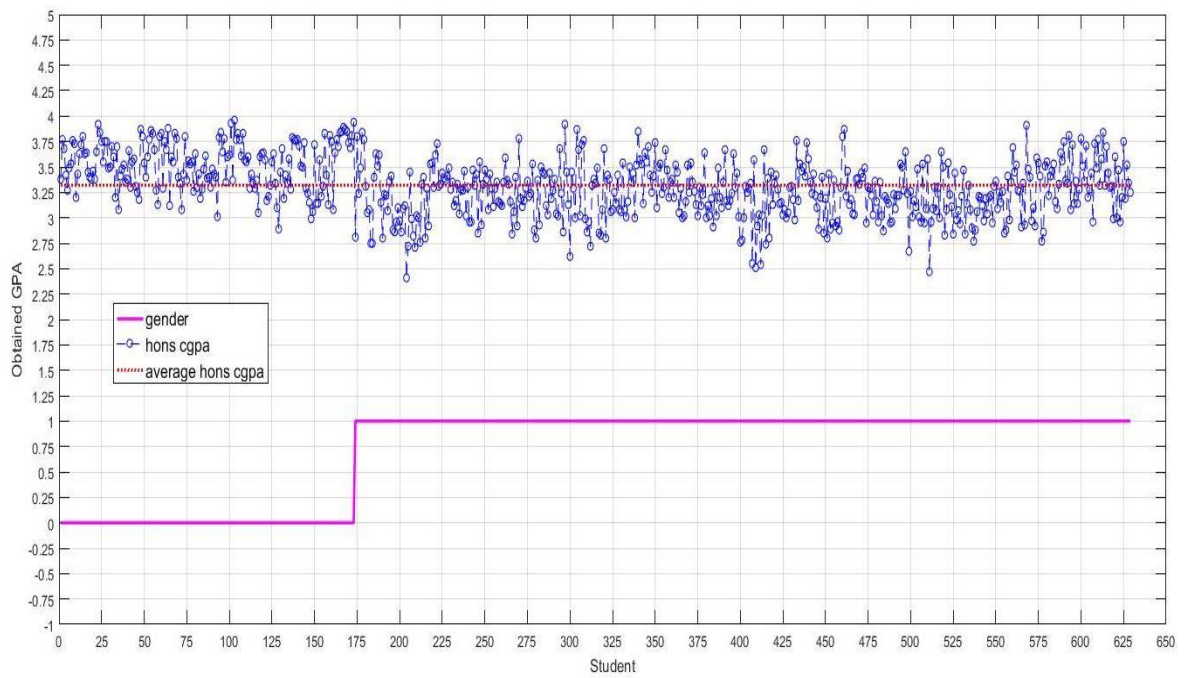


Figure 4.7(a): Gender effect on honors CGPA

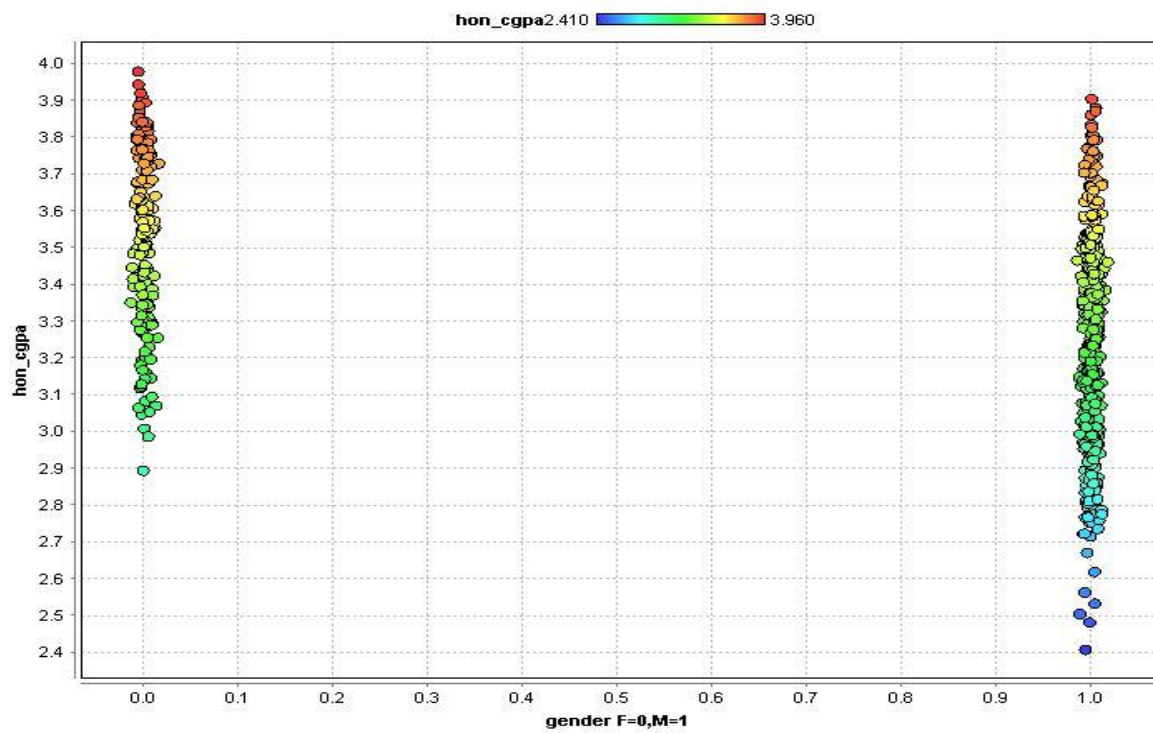


Figure-4.7(b): Gender effect on Honors GPA

In figure 4.7(b) described gender effect on university honors result. It was reported that rate of acquiring highest CGPA is more in case of female than male. Besides, rate of acquiring lowest CGPA is more in case of male than female.

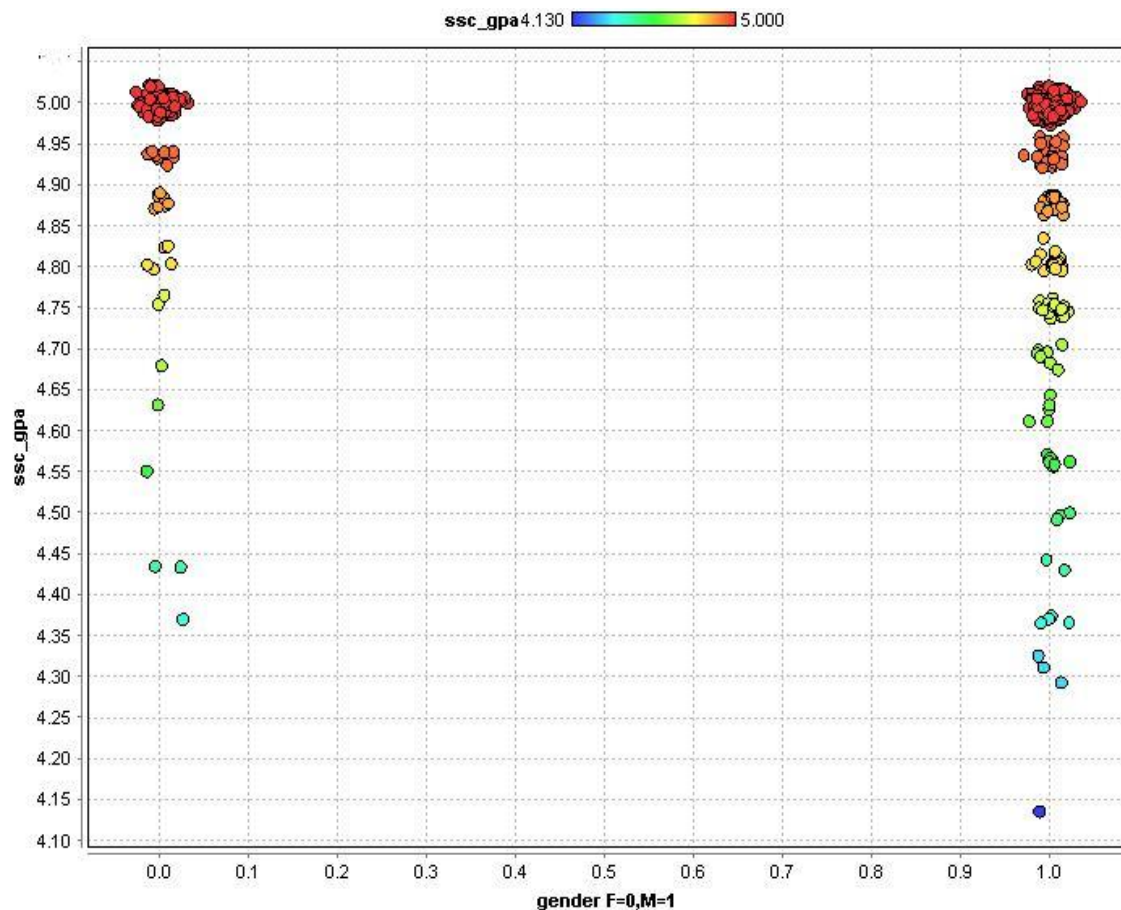


Figure-4.8: Gender effect on SSC GPA

In figure 4.8 presented the impact of gender on SSC result and 4.9 presented the effect of gender on HSC result. It was clear from the Figure 4.8, 4.9 that male and female result almost equal in SSC and HSC GPA. But the difference has been seen in the section of university honors result which shown in Figure 4.7 (a) and 4.7(b).

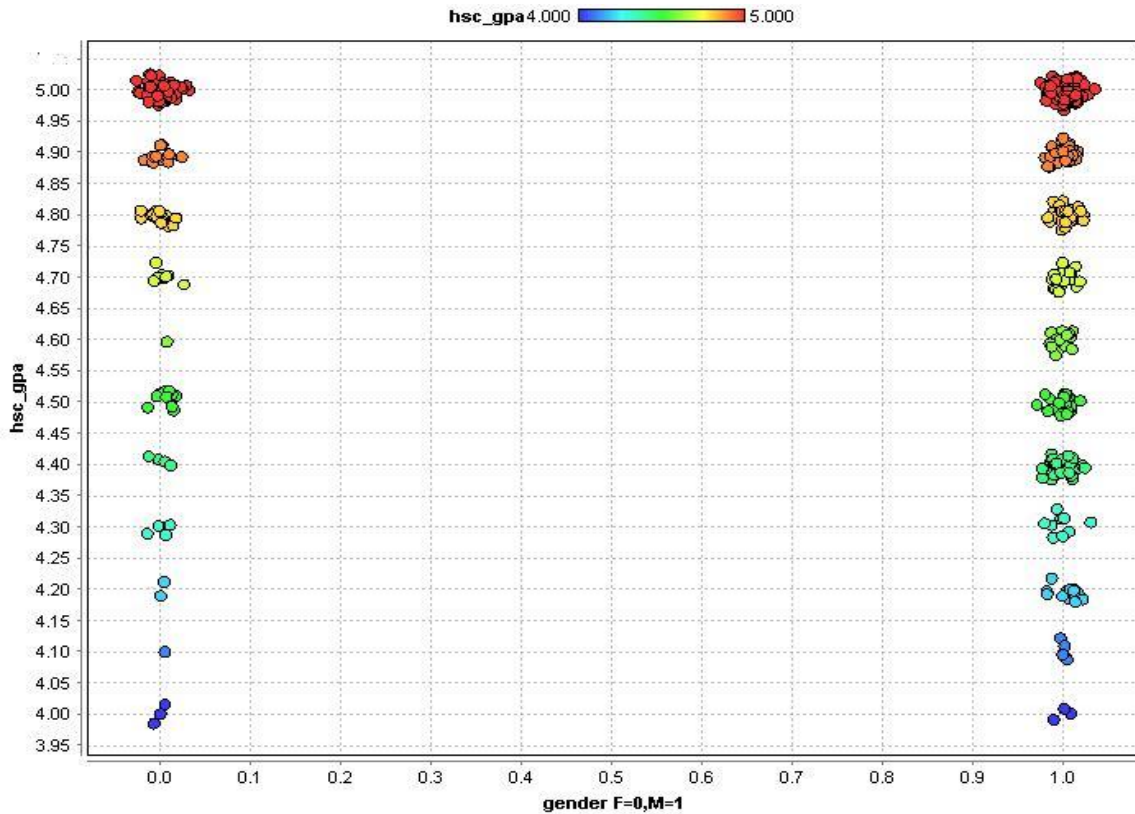


Figure-4.9: Gender effect on HSC GPA

From the Table 4.7 we see that only 1.16 % female students get low GPA, 42.77% students get medium GPA and 56.07% students get high GPA. On the other hand, the male side get 18.60% low GPA, 63.24% get medium GPA and only 18.16% get high GPA. Most of the female students get high GPA in university level while only one-fifth male student get high GPA in university level. Besides only about one percent female students get low GPA, while 18.60% male students get low GPA. Just as female are more advanced in terms of getting good results, they are also more backward in terms of getting low result. I think that's the reason is in university level boys are involved different things like politics, part time job, small business, conduct various academic coaching etc. On the other part, most girls focus only on their studies.

Table 4.7: Result table of gender effect on honors result

Categorized by	Number of students	Honors CGPA range		
		Number of student obtained low CGPA	Number of student obtained medium CGPA	Number of student obtained high CGPA
Female	173	2 , which is 1.16%	74, which is 42.77%	97. which is 56.07%
Male	457	85, which is 18.60%	289, which is 63.24%	83, which is 18.16%

4.9 EFFECT OF DEPARTMENT ON UNIVERSITY HONORS RESULT

In Figure 4.10 it was described university students academic performance based on department using bar chart. If we categorized department by faculty then Computer Science and Technology Engineering(CSTE), Applied Chemistry and Chemical Engineering(ACCE), Applied Mathematics (AM), Information and Communication Engineering(ICE) these subject are in engineering faculty and Microbiology, Food Technology and Nutrition Science (FTNS), Pharmacy, Fisheries and Marine Science (FIMS) these subject are Biology faculty.

In figure 4.10 described that average result of all department of these two faculties. We noticed that highest result in FIMS department students and lowest result in CSTE department students. Biology faculties department get good result comparatively than engineering faculties department. I think, one of the major causes is most of the students of engineering faculties given importance learning technical part and they think academic result is not important to do anything outstanding. Another reason is getting good CGPA from engineering faculties any subject really difficult comparatively from biology faculties any subject.

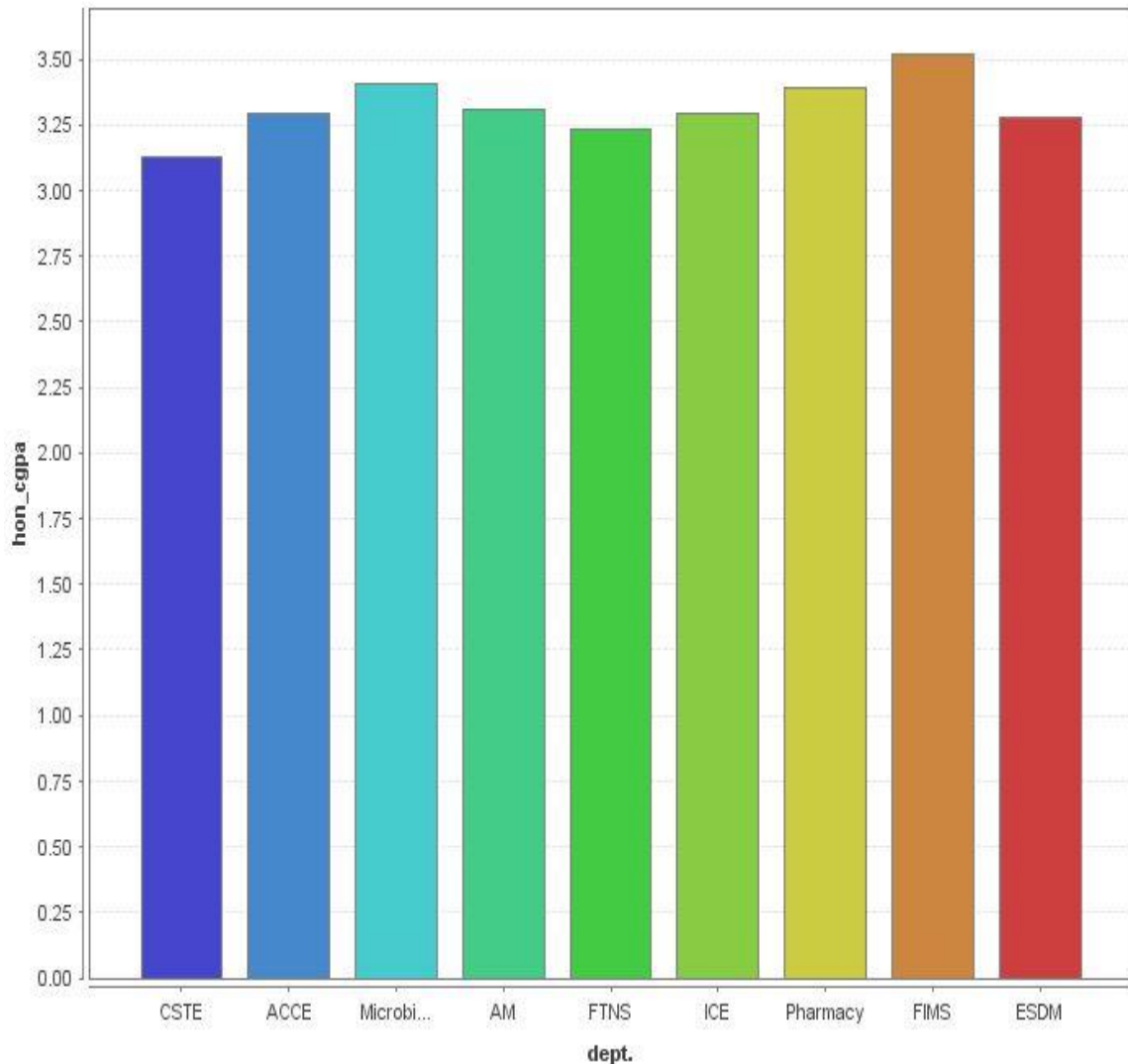


Figure 4.10: Honors CGPA analysis categorized by department

4.10 EFFECT OF SSC BOARD ON UNIVERSITY HONORS RESULT

In figure 4.11 university students honors result were analysis based on students SSC board and find out which board students achieved good result in honors level. From the above Figure 4.11 we reported that, Comilla board and Madrasa board students doing good result relatively others board students in honors result at NSTU. Students of Jessore, Rajshahi and Dinajpur board comparatively doing low result. There could be many reasons for this. One of the reason is long distance. In the beginning there is a problem to adapt to remote places. Also for long distance, many brilliant students don't admit remote areas university.

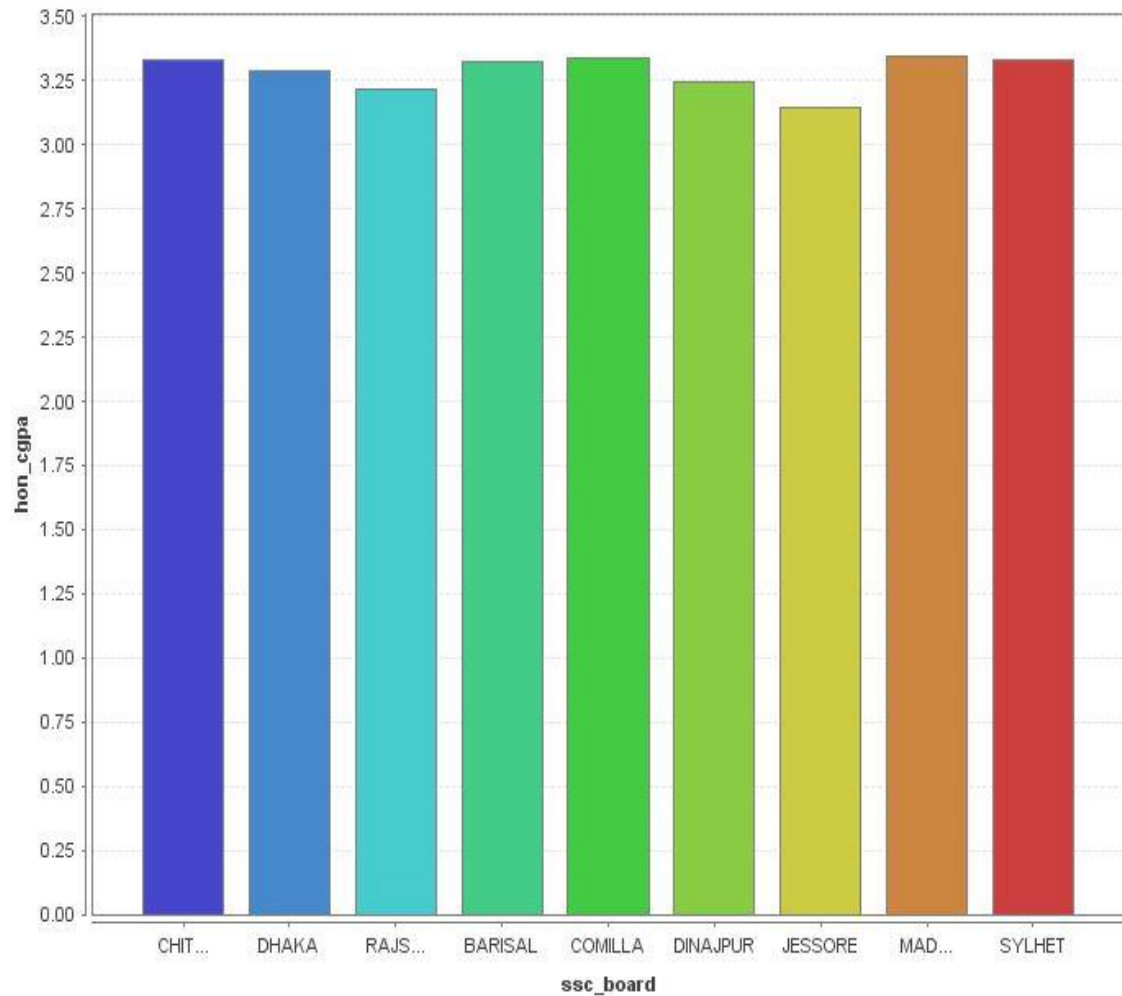


Figure 4.11: Honors CGPA analysis depend by SSC Board

Other reason maybe, irregular in class because students cannot attend regular classes due to commuting between home and university. We also noticed that comilla board students doing good result comparatively others board of students. This is the reason of home advantage as comilla board students actually near to NSTU.

CHAPTER 5

CONCLUSION

This present study was conducted to identify the factors that affect the student's performance. The study found that effect of individual subject like Math, Biology, Chemistry and Physics in HSC level on honors result. The effect of individual subject is less of a difference. Math and Biology result of HSC level has more impact on honors result. The students doing good result in honors level who achieved high GPA in Math and Biology. Besides, HSC GPA has more effect on university honors result between SSC and HSC level GPA. We noticed that female students acquired high result in honors level than male students. But both SSC and HSC level male and female students were doing nearly same result. It is also reported that biology faculties students achieved good result than engineering faculties students. Lastly, we saw that students has achieved good result at NSTU those SSC board were Comilla, Chittagong and Madrasa. The student performance can be improved if they build basic knowledge in HSC level. Specially it was needed strong consciousness in Mathematics and Biology. Besides male students should not involved in politics. They should stay away from drug addiction. Moreover, doing best performance in university get admitted to the nearest varsity if possible.

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