Academic and non-academic performances of honors and general degree students

STAT 22542

Survey Methods & Sampling Techniques

Department of Statistic & Computer Science

University of Kelaniya

Academic Year 2020/2021

By Group Number 02

Group Members

PS/2019/059 - A.T.D.Somaweera
PS/2019/079 - K.G.K.Vinurika
PS/2019/080 - K.G.E.H.Gayathrika
PS/2019/090 - A.M.Dilushika
PS/2019/091 - O.S.S.A.Perera
PS/2019/177 - S.N.Wannigama
PS/2019/179 - A.N.T.Samindara
PS/2019/199 - K.D.R.Tharushika
PS/2019/203 - R.T.I.Wijerathne
PS/2019/229 - S.M.D.M.K..Samarakoon
PS/2019/278 - L.L.R.B.Cabral

Acknowledgements

We would like to express our sincere gratitude to Dr. (Mrs.) A.M.C.H. Attanayake, Department of Statistics and Computer Science, Faculty of Science, University of Kelaniya for providing invaluable guidance and support throughout this project, enriching us with the knowledge required to do our survey project and helping us to get the required information about the population. We would like to extend our gratitude to Ms. Dilky for guiding and helping us to choose a prefect topic and helping us in several ways throughout our project. Last but not least, our thanks and appreciation to all our colleagues and people who helped us out with their abilities.

Table of contents

Background of the study

The topic of our survey project is, "Academic and non-academic performances of honors and general degree students."

We conducted the survey on Honors degree Students and General degree students of current third year undergraduates of Faculty of Science, University of Kelaniya who are following PS/BS/PE and ENCM courses.

Playing a sport is a wonderful way for students to take a break from academics and release the pent-up energy. It also helps them lead fuller and happier lives as regular sports and fitness activities have proven to provide not only physical benefits but also social and psychological benefits to students. It develops self-confidence, self-esteem, discipline, patience, perseverance and helps to improve leadership qualities. Participating in athletics has been known to improve the cognitive and memory functions of the brain, helping students to perform better in academics.

Participating in societies teaches and helps to improve and broaden our soft skills, gain leadership qualities, time management, get networking opportunities, engage with diverse groups of people, and many more. By joining societies and extra curricular activities, CV will enhance thus appearing more employable.

University of Kelaniya comprises many student clubs. Some of them are Gavel club, Leo club, Aisec club, Rotract club, career fair…etc., which work under the Career Guidance Unit. University students can join with these clubs and improve their soft skills so that they will have a good career after leaving the university. Gavel club is to improve public speaking and leadership of its members. Aisec club is to explore and develop its members' leadership potential. Rotract club and Leo club are to give their members contribution for social activities. Apart from the clubs that are under the career guidance unit, there are more clubs under different centers of the University of Kelaniya to improve students' talents and skills.

In addition, The Department of Physical Education (DPE) provides a wide range of Sports and Recreation programs for the benefit of internal students at the University. The main objective of the DPE is to promote and improve the student-sporting prowess and provide opportunities to develop team and individual sports.

As mentioned above, university is providing many facilities for students to enhance their skills. Hence, we wanted to identify whether students are engaging in sports and society activities and the Academic performance of Students who are utilizing these facilities and opportunities available in the university and the Academic performance of students who do not participate in any non-academic activities.

Students who have scored higher GPA will be selected for the Honors degree. So, we wanted to study how those students managed to do best in non-academic activities while performing well in their Academics as well.

And we need to identify whether students who are actively participating in non-academic activities have missed to manage their academic activities by considering the Student's GPA.

Aims & Objectives

Our aim is to get a clear idea about the Academic levels of third year undergraduates who were selected and not selected for the Honors degree and their performance in extra-curricular activities such as sports and societies.

Our objective is to make the undergraduate aware of the benefits they gain from engaging in societies and sports by managing their academics as well, and the effects of extra-curricular in studies and the ability to learn new soft skills which can be beneficial to their CV. As employers' lookout for candidates with resumes that present them as an all-round interesting person, by joining societies and extra-curricular activities, the resumes can stand out from other university applicants.

Methodology

Calculating the Sample Size (W.G.Cochran, 1977)

The Sample size was calculated using the Cochran formula.

$n = Z \propto ^2 * [p (1-p)/e^2]$

p- value which is the probability was calculated by taking the proportion using the

question “Do you participate any extra-curricular activities in university?” with the use of pilot study.

Table 1

	Frequency
Yes	24
No	5
Total	29

The proportion of the students who doing general degree in the university for the pilot

study is 83%,

Therefore, Z =1.96 (obtained from the standard normal distribution table

according to the confidence level which is 95% = 0.95).

p= 83%=0.83

Margin of error= (1-0.95) = 0.05

Therefore, using the above equation,

Sample size (n) = (1.96) ^2* [0.83(1-0.83)/ (0.05) ^2 = 216.8 ≈ 217

In this survey, we took four departments of third year students of Science Faculty in the University of Kelaniya as our population. We can consider those four departments as four strata.

Hence, we choose Stratified Sampling technique as our sample methodology.

Stratified Random Sampling Technique

Stratified random sample is obtained by separating the population elements into non-overlapping groups, called strata, and then selecting a simple random sample from each stratum.

Proportional allocation – The sample size in a stratum is made proportional to the number of units in the stratum.

Equal allocation – The same number of units is taken from each stratum irrespective of the size of the stratum.

Neyman allocation – The number of units in the sample from a stratum is made proportional to the product of the stratum size and the stratum standard deviation.

Table 2: Table of the sizes of the population with strata.

Department	Number of students
PS	295
BS	171
ENCM	49
PE	34

Separately calculating the sample size of each department using the following

equation.

a = (sample size /total population) * no. of students in each department

In here sample size, n = 217 population size = 549

PS = (217/549) * 295 = 117

BS = (217/549) * 171 = 68

ENCM = (217/549) * 49 = 19

PE = (217/549) * 34 = 13

As in general process, under each stratum, simple random sampling was conducted. We could find student number details of each department from the dean's office. Then we separately calculated sample sizes of each department and generated random numbers relevant to them. Then, we sent emails to relevant students under each stratum asking to fill our questionnaire. Finally, we could fill out questionnaire with enough responses.

According to the calculation 117 students should be include to the sample from physical science department, 68 students should include to the sample from biological Science

department, 19 students should include to the sample from ENCM department, and 13 students should include to the sample from physics and electronic department.

Randomly Generated Student Numbers

BS	EM	PE	PS
BS/2018/044	EM/2018/056	PE/2018/006	PS/2018/053
BS/2018/142	EM/2018/004	PE/2018/022	PS/2018/022
BS/2018/009	EM/2018/013	PE/2018/009	PS/2018/160
BS/2018/015	EM/2018/055	PE/2018/028	PS/2018/110
BS/2018/145	EM/2018/040	PE/2018/002	PS/2018/279
BS/2018/108	EM/2018/005	PE/2018/018	PS/2018/227
BS/2018/016	EM/2018/045	PE/2018/001	PS/2018/040
BS/2018/080	EM/2017/015	PE/2018/017	PS/2017/072
BS/2018/098	EM/2018/050	PE/2018/003	PS/2018/254
BS/2018/005	EM/2018/021		PS/2018/249
BS/2018/022	EM/2018/054		PS/2018/024
BS/2018/172	EM/2018/002		PS/2018/152
BS/2018/163	EM/2018/030		PS/2018/197
BS/2018/156	EM/2018/020		PS/2018/262
BS/2018/124	EM/2018/029		PS/2018/069
BS/2018/133			PS/2018/235
BS/2018/014			PS/2018/208
BS/2018/127			PS/2018/104
BS/2018/113			PS/2018/084
BS/2018/121			PS/2018/295
BS/2018/154			PS/2018/116
BS/2018/047			PS/2018/082
BS/2018/110			PS/2018/247
BS/2018/152			PS/2018/207
BS/2018/059			PS/2018/212
BS/2018/069			PS/2018/158
BS/2018/007			PS/2018/170
BS/2018/002			PS/2018/239
BS/2018/033			PS/2018/177
BS/2018/184			PS/2018/199
BS/2018/162			PS/2017/162
BS/2018/031			PS/2018/213
BS/2018/118			PS/2018/149
BS/2018/173			PS/2018/268

BS/2018/182			PS/2018/081
BS/2018/013			PS/2018/077
BS/2018/170			PS/2018/046
BS/2018/102			PS/2018/072
BS/2018/160			PS/2017/099
BS/2018/019			PS/2018/088
BS/2018/010			PS/2018/086
BS/2018/177			PS/2018/155
BS/2018/071			PS/2018/200
BS/2018/111			PS/2018/102
BS/2018/064			PS/2018/185
BS/2018/088			PS/2017/050
BS/2018/001			PS/2018/261
BS/2018/076			PS/2018/062
BS/2018/045			PS/2018/166
BS/2018/024			PS/2018/075
BS/2018/153			PS/2017/112
BS/2018/058			PS/2018/083
BS/2018/021			PS/2018/238
BS/2018/079			PS/2018/282
BS/2018/082			PS/2018/194
BS/2018/151			PS/2018/241
BS/2018/055			PS/2018/010
BS/2018/139			PS/2018/192
BS/2018/062			PS/2018/253
BS/2018/035			PS/2018/168
BS/2018/029			PS/2017/155
BS/2018/067			PS/2018/198
BS/2018/032			PS/2018/290
BS/2018/161			PS/2018/154
BS/2018/006			PS/2018/047
BS/2018/038			PS/2018/005
BS/2018/020			PS/2018/125
BS/2018/049			PS/2018/284
			PS/2018/049
			PS/2018/013
			PS/2018/090
			PS/2018/280
			PS/2018/096
			PS/2018/230

			PS/2017/004 PS/2018/028 PS/2018/231 PS/2018/095 PS/2018/007 PS/2018/126 PS/2018/060 PS/2018/070 PS/2017/159 PS/2018/175 PS/2018/073 PS/2018/027 PS/2018/281 PS/2018/147 PS/2017/017 PS/2018/163 PS/2018/054 PS/2018/141 PS/2018/080 PS/2018/094 PS/2017/263 PS/2018/264 PS/2018/164 PS/2018/202 PS/2018/900 PS/2018/250 PS/2018/037 PS/2018/100 PS/2018/294 PS/2018/179 PS/2018/098 PS/2018/004 PS/2018/293 PS/2018/019 PS/2018/171 PS/2018/217 PS/2018/190 PS/2017/236 PS/2018/232

Questionnaire

In this survey our goal was to find Academic and Non-academic performance of Honors degree students and General degree students of current third year undergraduates of faculty of Science, University of Kelaniya.

Total population is 549 students, and our sample size was 217 students from the population.

Then we designed questionnaire as below to collect data from our sample.

Personal Details

01. Course *

- PS
- BS
- EM
- PE

02. Gender*

- Male
- Female

03. GPA (range) - Current*

- 3.70 - 4.00
- 3.30 - 3.70
- 3.00 - 3.30
- 2.00 - 3.00
- Less than 2.00

04. Select your degree type *

- Special
- General

05. Select your department / departments*

- Department of Statistics and Computer Science
- Department of Chemistry

- Department of Mathematics
- Department of Microbiology
- Department of Physics
- Department of Plant and Molecular Biology
- Department of Zoology and Environmental Management

Family background

06. What is your mother's occupation*

07. What is your father's occupation*

08. Do you have any elder siblings? *

- Yes
- No

09. If yes, highest educational level of him / her?

- Upto O/L
- Upto A/L
- Higher Studies

Educational History

10. Did you pass the scholarship exam? *

- Yes
- No
- Didn't do.

11. Please State your results for the following Subjects in the Ordinary level examination*

	A	B	C	S	F
Science					
Mathematics					
English					

F

12. Please state your A/L Z-Score*

13. From which district did you attempt for A/L examination? *

Extra-curricular activities

14. Do you participate any extra-curricular activities in university? *

- Yes
- No

External Degree

15. Have you completed or currently doing any external degree at another university? *

- Yes
- No

16. If yes, mention your degree?

Covid – 19 Pandemic

17. How satisfied are you with the amount of time you spend Speaking with your lecturers during Covid - 19 pandemic than nowadays? *

- Highly satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Highly Dissatisfied

18. Are you concerned about contracting Covid - 19 by attending lectures? *

- Yes
- No

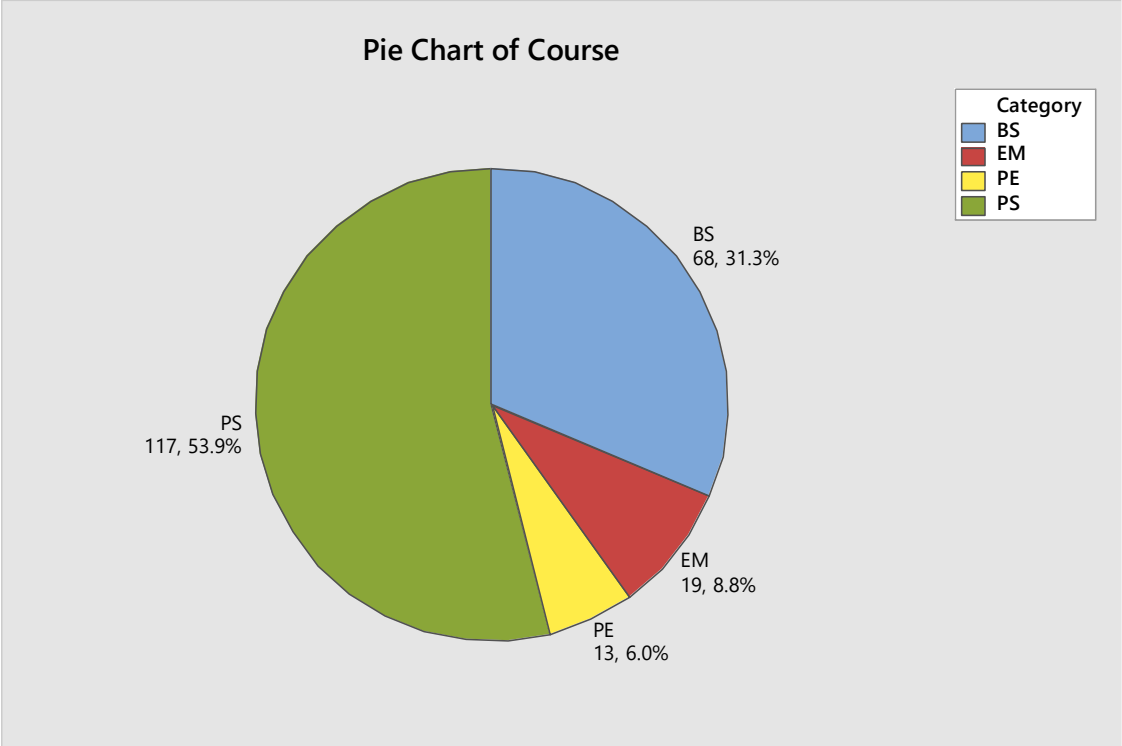
19. Did you feel you had the necessary support and resources you needed to effectively study from home during the covid-19 crisis last two years? *

- Strongly agree.
- Agree
- Neutral
- Disagree
- Strongly disagree.

Descriptive Analysis & Interpretation

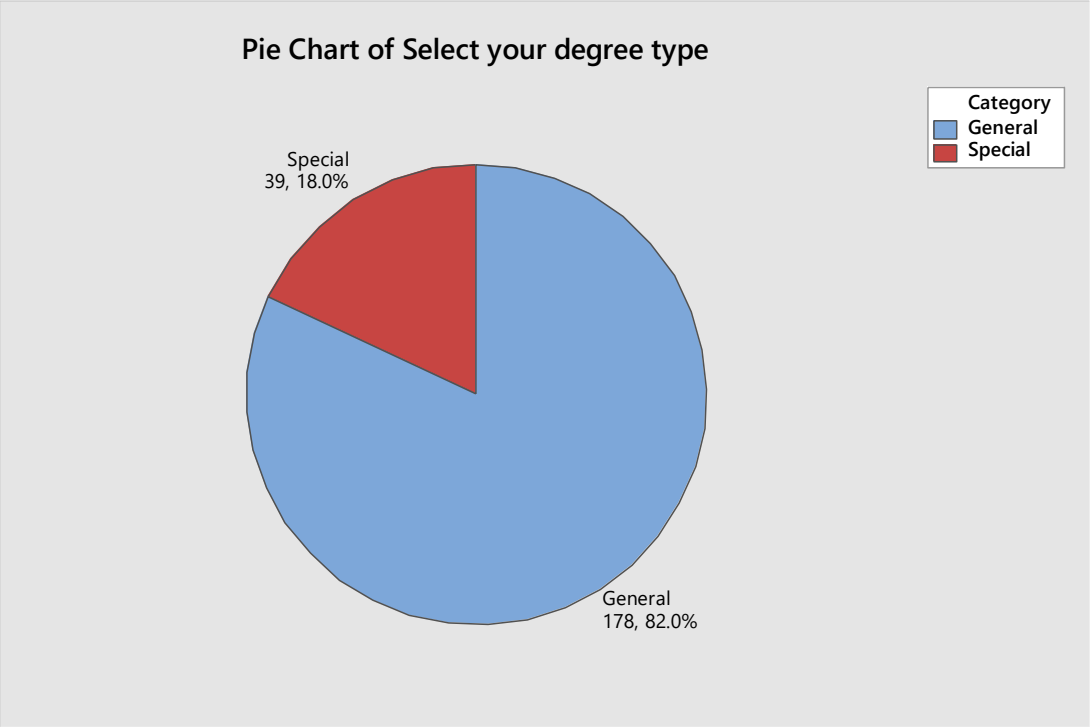
In this questionnaire we included nineteen questions.

Graph 01



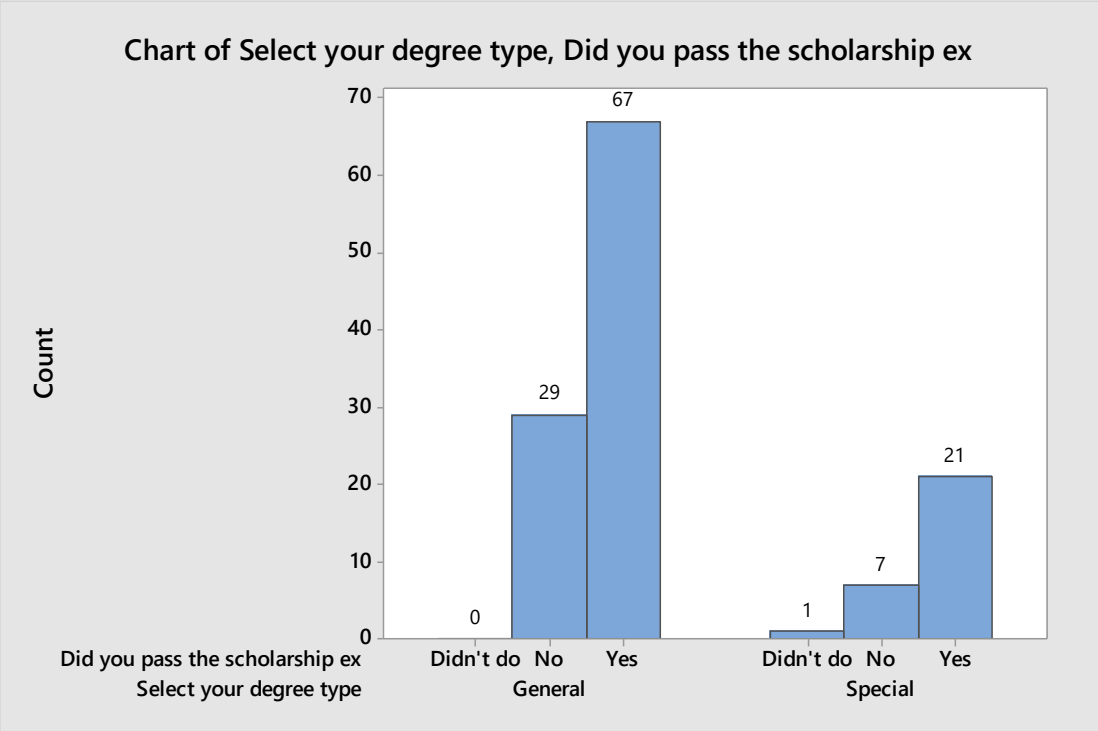
Using First Question we got Course of the student. According to the sample size calculation there are 117 (53.9%) physical Science students, 68(31.3%) biological Science students, 13(6.0%) Physics and Electronic students, and which indicate 19(8.8%) Environmental Conversation and management students.

Graph 02



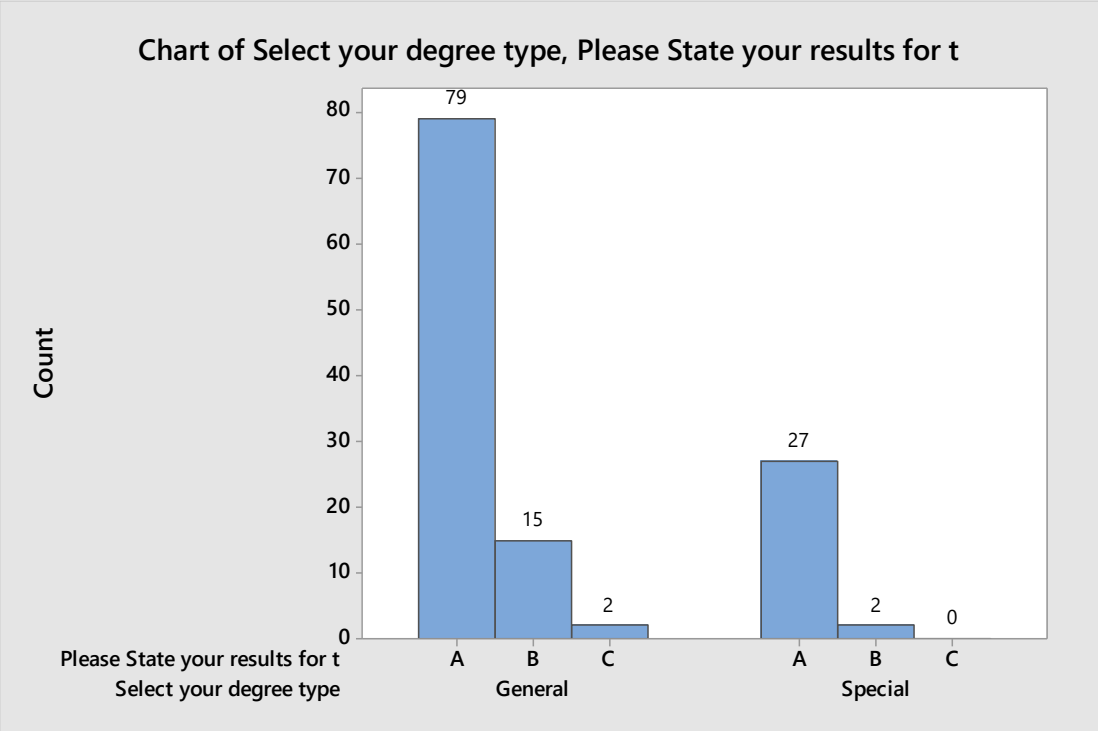
Using Fourth Question We categorized respondents' degree type as Special and General.39 (18.0%) students are Honors degree students, and 178(82.0%) students are General degree students.

Graph 03



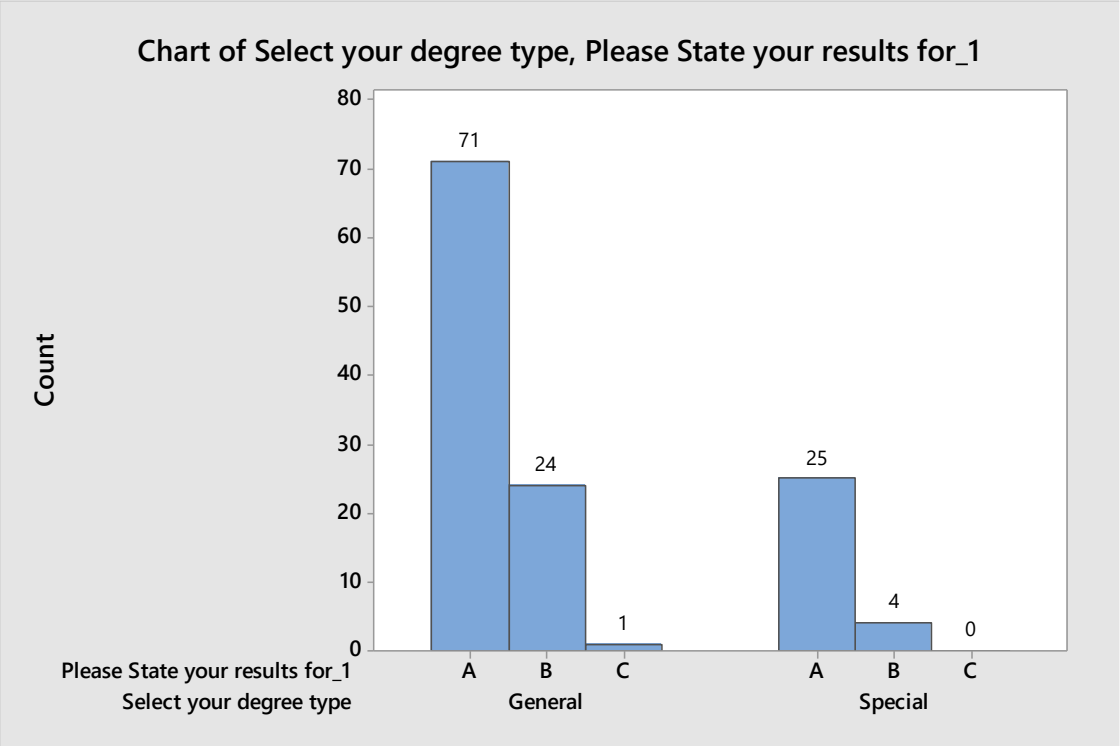
We can see among Honors degree students, most of the students (21) have passed Scholarship Examination. And, among General degree students, most of the students (67) have passed Scholarship Examination So passing a scholarship exam is not a considerable influence to doing an honors degree.

Graph 04



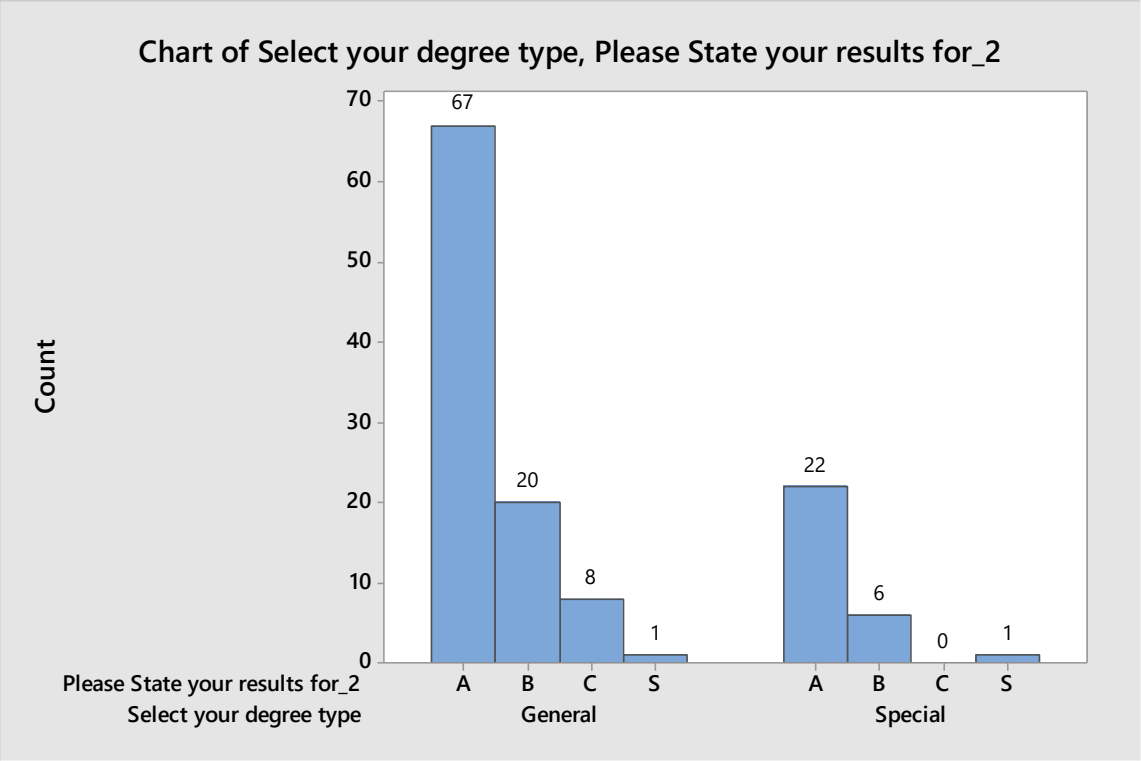
We can see among Honors degree students, most of the students (27) have A pass Science subject in O/L Examination. And, among General degree students, most of the students (79) have A pass Science subject in O/L Examination. So having A pass for science subject in O/L exam is not a considerable influence to doing an honors degree.

Graph 05



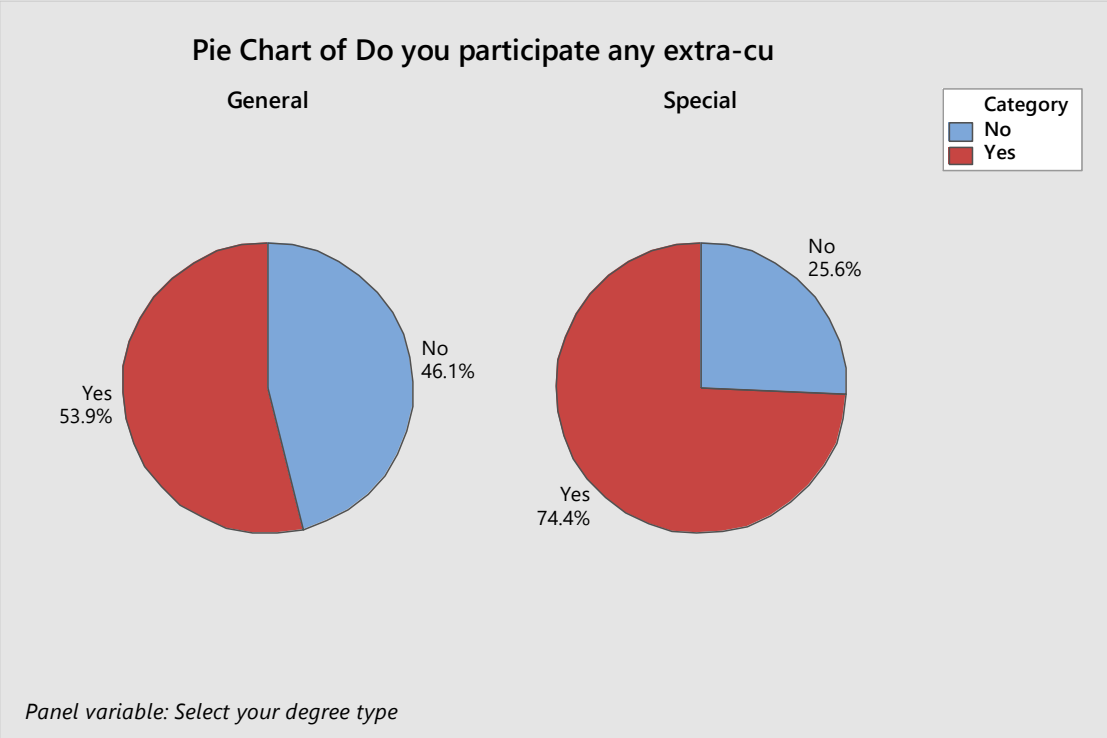
We can see among Honors degree students, most of the students (25) have A pass Mathematics subject in O/L Examination. And, among General degree students, most of the students (71) have A pass Mathematics subject in O/L Examination. So having A pass for Mathematics subject in O/L exam is not a considerable influence to doing an honors degree.

Graph 06



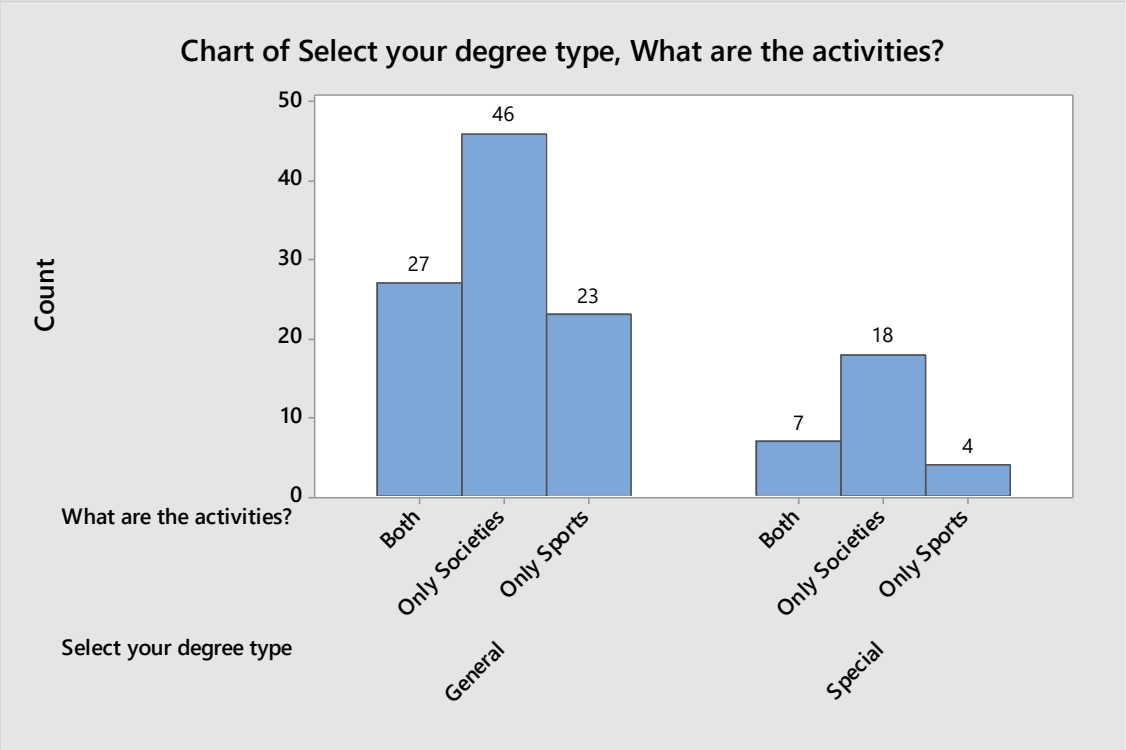
We can see among Honors degree students, most of the students (22) have A pass English subject in O/L Examination. And, among General degree students, most of the students (67) have A pass English subject in O/L Examination. So having A pass for English subject in O/L exam is not a considerable influence to doing an honors degree.

Graph 07



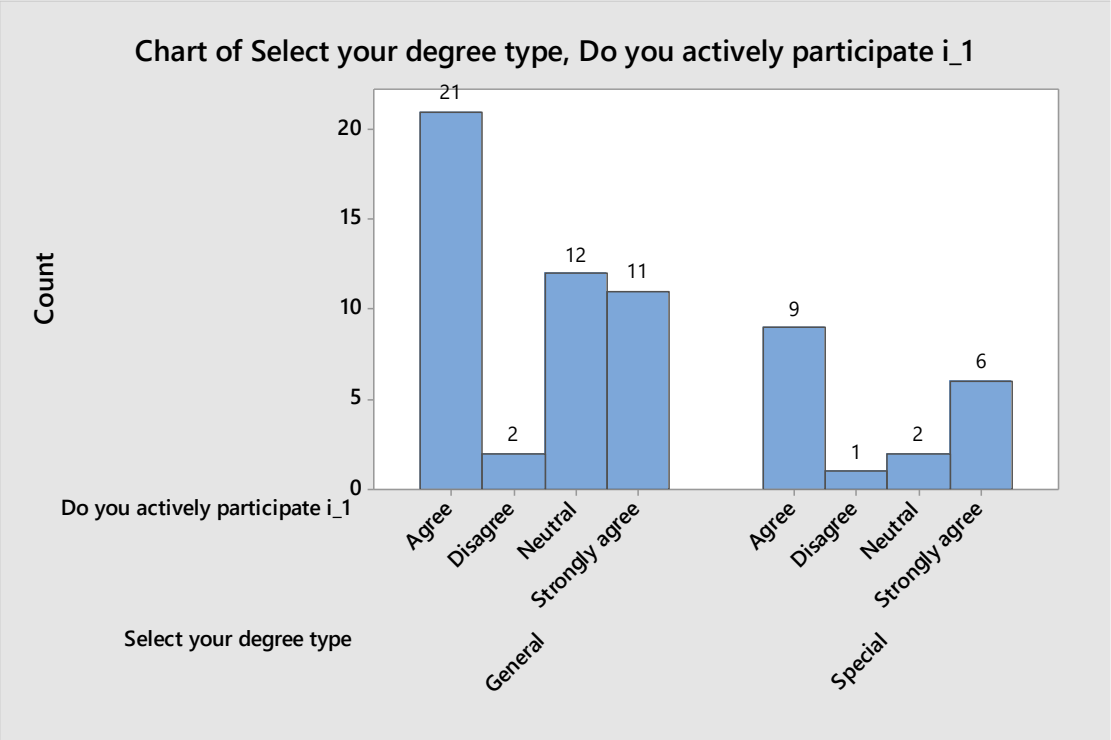
We can see among students who have Honors degree most of students (74.4%) are doing an extracurricular activity. So doing an extracurricular activity is not an obstacle to doing Honors degree. Those students have shown good academic performances as well.

Graph 08



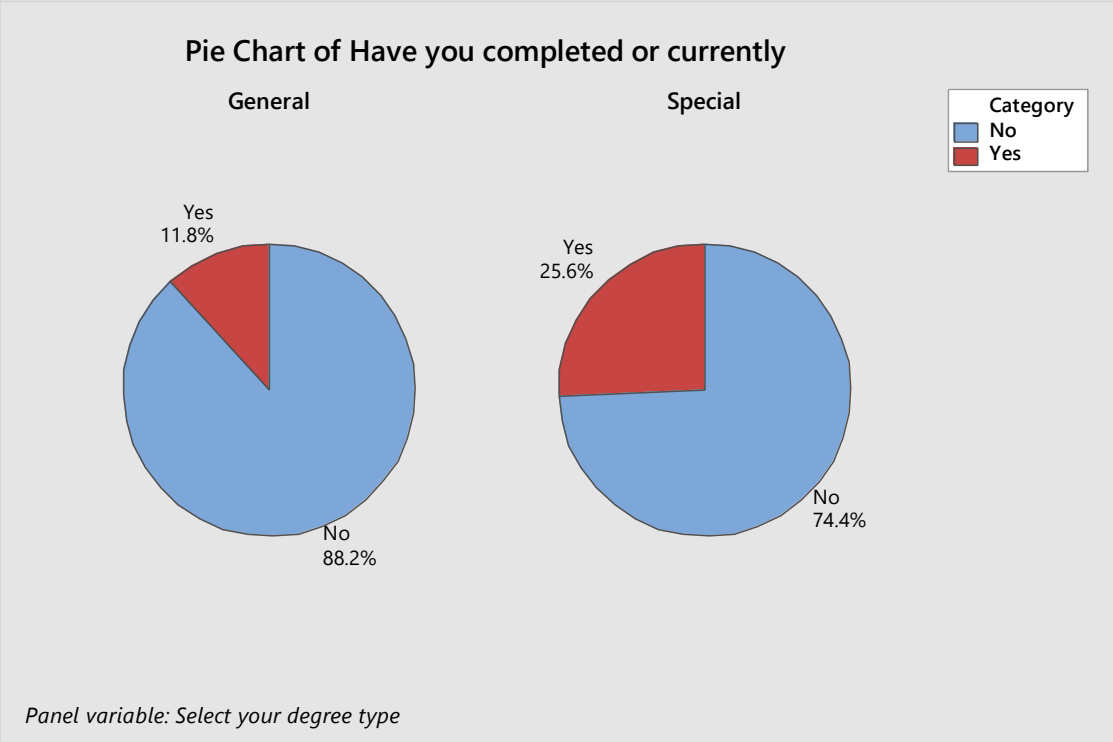
According to the above graph most of the general degree and honors degree students work only societies. A small number of students in both degrees only sports.

Graph 09



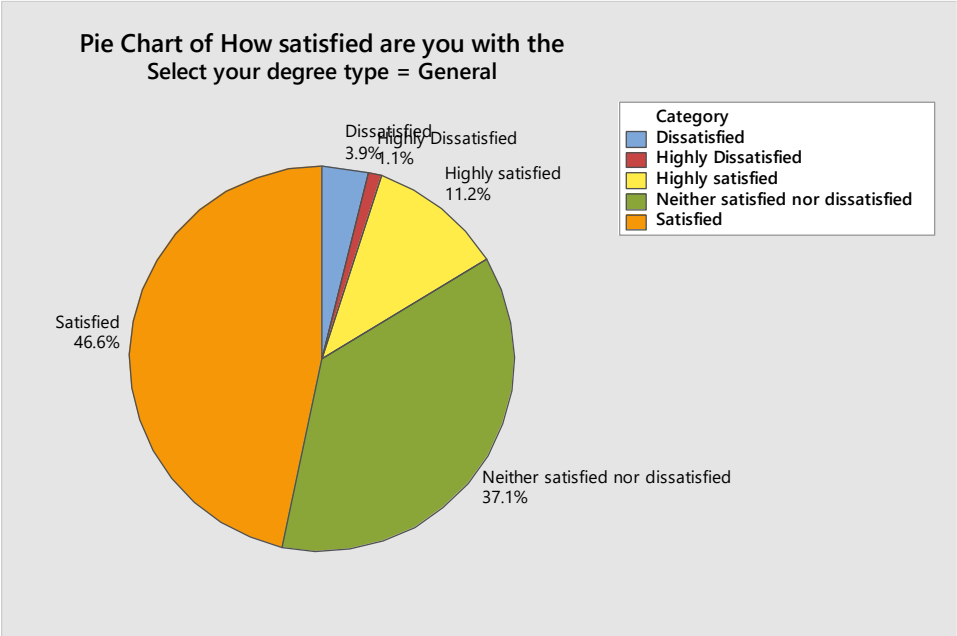
We can see among both general degree students and honors degree students who only work on societies, most of the students actively participate activities in societies.

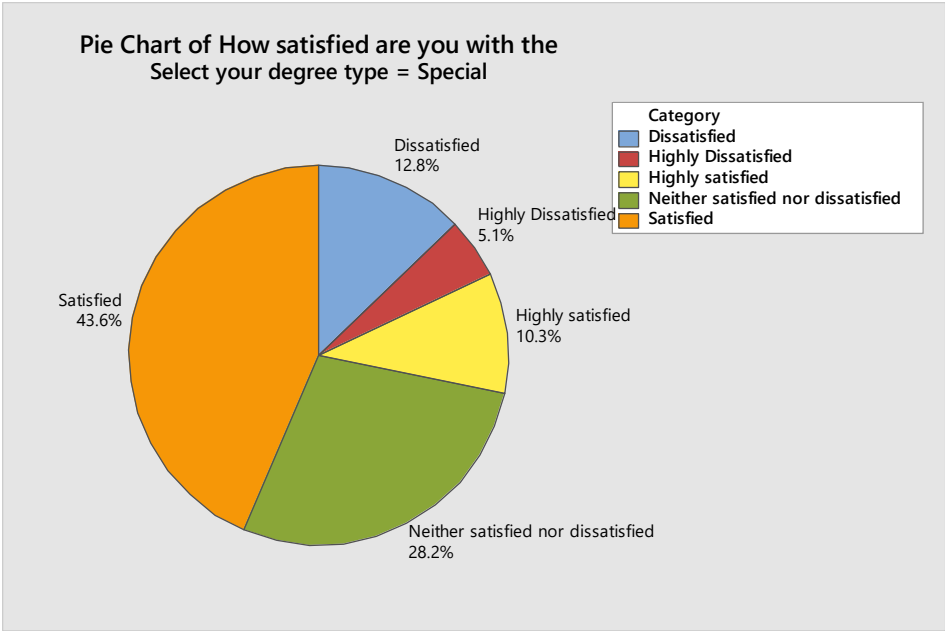
Graph 10



According to the above pie chart most honors degree students doing external degree more than general degree students.

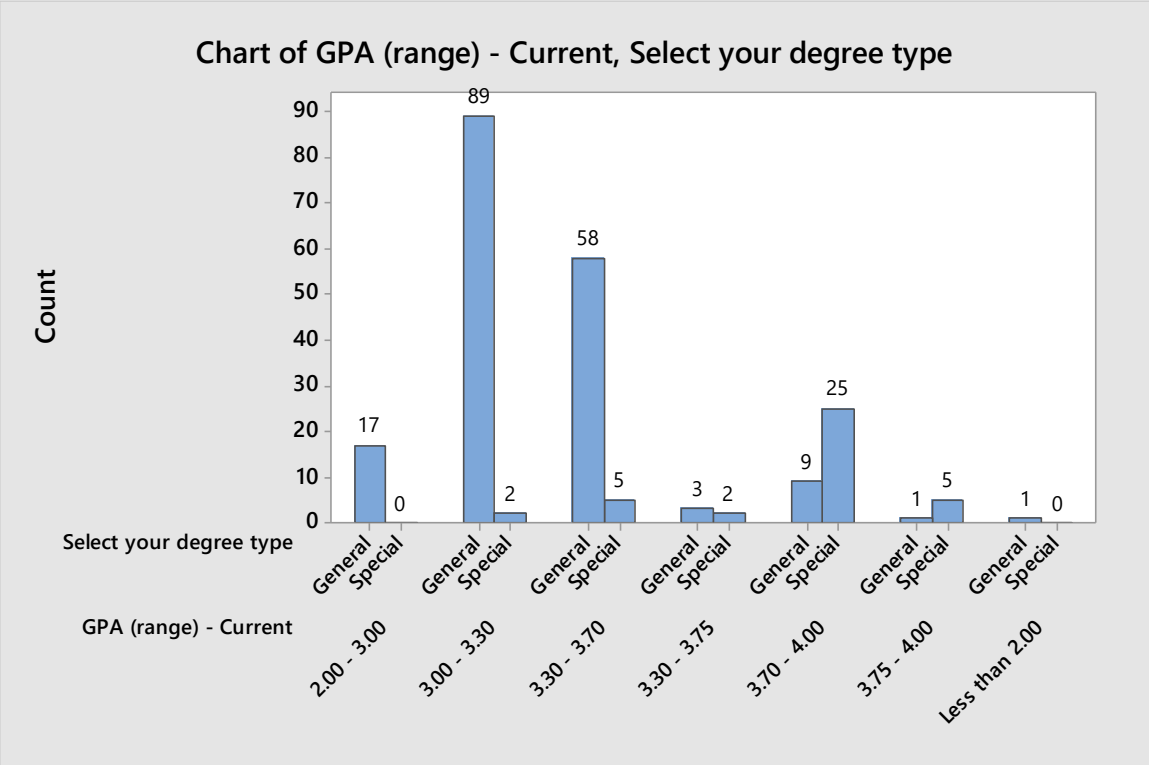
Graph 11





According to the above two graphs more than 50% general and honors degree students satisfied with the amount of time that they spend Speaking with your lecturers during Covid - 19 pandemic than nowadays.

Graph 12



By above graph represent most of general degree students (89) have GPA between 3.00-3.30 and most of Honors degree students (25) have GPA between 3.70-4.00

Discussion

Using gathered data, we identified students who are actively participating in non-academic activities and academic activities also, Students managed to do best in non-academic activities while performing well in their academic as well. considering our results most of the honors and general degree students works on societies and sports. most of honors degree students completed their external degrees and others are doing external degrees parallel to their usual degree. Therefore, academic and non-academic performance of honors degree student is higher than general degree students.

Conclusion

We have expected to study the Academic and Non-academic performance of Honors degree Students and General degree students who are studying third-year students of the faculty of science, University of Kelaniya as our research. We selected a sample of third-year students in the science faculty to conduct our research and according to the research, we conclude that non-academic and academic performances impacted students' GPAs but in the analysis part, we saw that students who do sports and social activities show good academic performances with their nonacademic activities. Many students have said that doing extracurricular activities is worth it in our open-ended, according to the student's opinions and the result of the survey we conclude nonacademic performance could impact not an obstacle to students' academic performance.

References

Reference: Cochran, W.G. (1977) Sampling Techniques. 3rd Edition, John Wiley & Sons, New York

Individual contribution

Student Number	Task Completed
PS/2019/059	• Sending Emails to students • Making Questionnaire
PS/2019/079	• Presenting the project • Sending Emails to students • Making Questionnaire
PS/2019/080	• Sending Emails to students • Finalize the report. • Making Questionnaire
PS/2019/090	• Presenting the project • Sending Emails to students • Making Google Form
PS/2019/091	• Sending Emails to students • making presentation • Making Questionnaire
PS/2019/177	• Sending Emails to students • Discussion • Making Questionnaire
PS/2019/179	• Sending Emails to students • Making Questionnaire
PS/2019/199	• Presenting the project • Sending Emails to students • Discussion
PS/2019/203	• Presenting the project • Sending Emails to students • conclusion
PS/2019/229	• Sending Emails to students • Methodology • Analysis and interpretation
PS/2019/278	• Presenting the project • Sending Emails to students • Generating Random Numbers