A

PROJECT REPORT

ON

"A STUDY ON YOUTH PROGRESS"

SUBMITTED

TO

DEPARTMENT OF STATISTICS,

SHIVAJI UNIVERSITY KOLHAPUR

FOR THE PARTIAL FULFILLMENT OF THE DEGREE
M.Sc. (STATISTICS)

PRESENTED BY,

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UNDER THE GUIDANCE OF,

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2022-23

CERTIFICATE

This is to certify that the project entitled **"A STUDY ON YOUTH PROGRESS"** as partial fulfilment for the award of the degree of M.Sc. in Statistics of Shivaji University, Kolhapur is a record of bonafide work carried out by them under my supervision and guidance. To the best of my knowledge, the matter presented in the project has not been submitted earlier.
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ACKNOWLEDGEMENT

Reaching up to this stage would not have been possible without invaluable help and support from many people.

First of all we would like to express our gratitude to the **Department of Statistics (Shivaji University, Kolhapur)** for allowing us to do the project. We would like to offer special thanks to Dr. S. S. Sutar for the guidance of this project and timely support throughout the completion of this project.

We would also like to express our gratitude to Prof. Dr. S. B. Mahadik (HOD, Dept. of Statistics), Dr. S. D. Pawar, Mr. S. V. Rajguru, Mr. S. M. Patil, and Mr. S. K. Ganjave Sir for their support, suggestions, and guidance for this project.

We would like to thank all my friends, M.Sc. part-I and part-II students, research students, non-teaching staff of our department for their co-operation and help which we received from them throughout the work.

Finally, we are also thankful to one and all, who have directly or indirectly extended their helping hands not only during the course of this project.

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INTRODUCTION

WHY A YOUTH PROGRESS INDEX?

"The Youth Progress Index is a concrete tool to policy makers and advocates to support decision making on policy and investments affecting Youth."

The Youth Progress Index is one of the first ever instruments for measuring the quality of life of young people independently of economic indicators. As such, the framework makes a significant contribution to the policy debate – including for advocacy as well as scholarly research – on measuring performance of societies related to youth matters, and defining progress beyond economic achievements.

The framework is structured around 3 "dimensions":

1. Basic Human Needs
2. Foundations of Wellbeing
3. Opportunity

and 12 "components", and 60 distinct "indicators". The framework can serve as a tool to assist strategic planning, as well as for in-depth explorations into certain societal issues and patterns. It is equipped to monitor progress and evaluate the success of policy investment over time.

The Youth Progress Index was developed to assess young people's quality of life around the world. It provides a country-based measurement framework for evidenced-based policy making on youth issues related to factors such as access to education, healthcare, housing, quality of jobs, civic and political and social activity participation and environmental sustainability, amongst others. It

There is still a lack of reliable international comparative data on the well-being of young people, and this affects not only young people themselves, but also youth practitioners and others who work in support of young people's development.

Girls and young women in particular, often face additional barriers to participation related to family and community expectations, power-related discrimination, concerns regarding physical security, limits placed on movement and association, restrictive gender norms, and limited opportunity to pursue higher education.

Many young people are also facing tough labour market conditions. Employment opportunities are not increasing as fast as GDP growth; in 2017 nearly 67 million young people were unemployed globally 4, and many of those who are employed are trapped in working poverty 5 or in precarious conditions. 6 Such figures create a serious cause for concern on many levels: high youth unemployment not only hampers economic growth, but negatively impacts the health and well-being of young people and their opportunity to lead rewarding lives, and, in some cases, their ability to meet their basic needs. So, it is important to check progress of youth and based on the results government can make policies and strategies for progress of youth.

The 3 dimensions and 12 components can be summarized in the following table that are used to structure the YPI:


BASIC HUMAN NEEDS
Nutrition & Basic Medical Care
Undernourishment
Maternal mortality rate
Child mortality rate
Child stunting
Deaths from infectious diseases
Diet low in fruits and vegetables
Water & Sanitation
Access to improved sanitation
Access to improved water source
Unsafe water, sanitation and hygiene
Satisfaction with water quality
Shelter
Access to electricity
Household air pollution
Dissatisfaction with housing affordability
Usage of clean fuels and technology for cooking
Personal Safety
Interpersonal violence
Transportation related injuries
Political killings and torture
Intimate partner violence
Money stolen
FOUNDATIONS OF WELLBEING
Access to Basic Knowledge
No schooling
Primary school enrollment
Secondary school attainment
Gender parity in secondary attainment
Access to quality education
Access to Information & Communications
Mobile telephone subscriptions
Internet users
Access to online governance
Alternative sources of information index
Health & Wellness
Life expectancy at 60
Premature deaths from non-communicable diseases
Access to essential services
Access to quality healthcare
Satisfaction with availability of quality healthcare
Environmental Quality
Outdoor air pollution
Lead exposure
Particulate matter pollution
Species protection
OPPORTUNITY
Personal Rights
Political rights
Freedom of peaceful assembly
Freedom of religion
Access to justice
Property rights for women
Freedom of discussion
Personal Freedom & Choice
Vulnerable employment
Early marriage
Satisfied demand for contraception
Corruption
Freedom of domestic movement
Young people not in education, employment or training
Inclusiveness
Acceptance of gays and lesbians
Discrimination and violence against minorities
Equal protection index
Equal access index
Power distributed by sexual orientation
Access to public services distributed by social group
Access to Advanced Education
Expected years of tertiary education
Women with advanced education
Quality weighted universities
Citable documents
Academic freedom

OBJECTIVES

The major objective of this study is,

- To understand the concept of youth progress and its quantification (Youth Progress Index).

Following are some other objectives of this study based on

For Secondary Data:

- To find the how significant the correlation between YPI with respect to other indices (SDI, HDI, Happiness Score, etc.) of India and to visualize it by using Power BI.

For Primary Data:

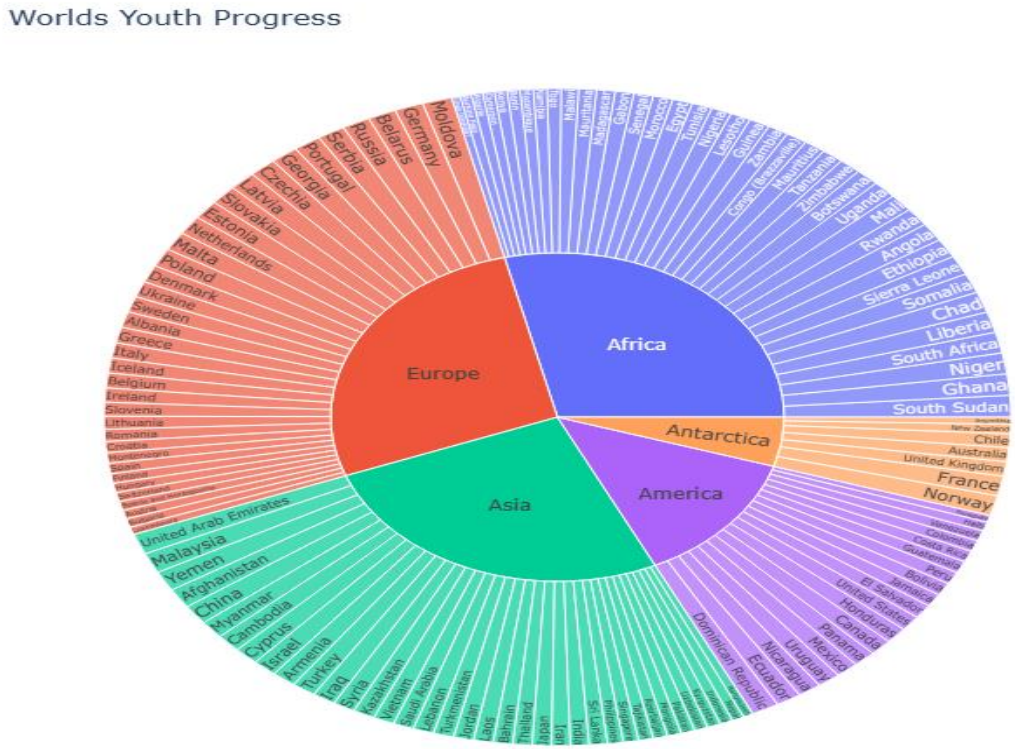
- To evaluate the development among the youth as consideration of individuals of different department in Shivaji University.
- To propose and explore the measures for enhancing development among the youth.
- To offer suitable suggestions based on finding.
- To access how youth progress learning can support youth empowerment.

METHODOLOGY

SOURCE OF SECONDARY DATA :

We got the secondary data from the United Nations Development Programme (UNDP) website. YPI was obtained from the countries which have been with this survey for consistently 10 years. The data are secondary and the sample period from 2011 to 2020.We take into consideration only those countries that are involved in all 10 years of measuring process of YPI. And the count of these countries are 138 out of 168 countries.

We also compare YPI by continent wise (Asia, Africa, Europe, North America, South America, Oceania and Antarctica). Government of India publishes every year the data on youth progress variables in Economic Indicators Survey.



Also, we have taken the data on other indices

a) Sustainable Development Index (SDI)

b) Human Development Index (HDI)

c) Happiness Score

d) Society Support

e) Freedom to our choice

f) Gross Domestic Product (GDP)

METHOD OF PRIMARY DATA COLLECTION:

In order to access the development among the Youth's in the Shivaji University, we have collected primary data. The primary data is collected by preparing a well-defined questionnaire containing the relevant question that quantifies the study objectives.

In the case of primary data collection, we have used the convenience sampling technique. We have prepared the plan to take observations and data of 131 respondents (youth's) for study. Before going to actual data collection, we have gone through a pilot survey of 25 respondents, which is taken by the convenience sampling to see difficulties, which may occur while actual data collection. We have revised our questionnaire by dropping ambiguous questions and adding very simple questions to get required information.

DATA ANALYSIS:

After data collection, we have prepared code book file with the help of MS-Excel. The same is used for the further analysis. From the primary data we first sub-grouped the data into seven dimensions like Health, Living standard, Youth Amenities, Financial, Education, Personal Development and Behave with Integrity based on their different indicators. Further we compute the seven types of the indexes by using the simple average method based on the indicators.

The seven indexes are as follows:

1. Health Index (HI)
2. Living Standard Index (LSI)
3. Youth Amenities Index (YAI)
4. Financial Index (FI)
5. Education Index (EI)
6. Personal Development Index (PDI)
7. Integrity Index (II)

The overall Youth Progress Index is calculated as the arithmetic average of the seven dimensions.

$$\textbf{Youth Progress Index} = \frac{\sum_d \boldsymbol{Dimensions}}{\mathbf{7}}$$

Then we prepared the tables for the above indices and it is used to visualize the data graphically. Also, we have used Power BI to visualize the secondary data. Also, f
or the primary data we have used the logistic regression and Chi-square test of independence.

STATISTICAL TOOLS :

1. Correlation

STATISTICAL SOFTWARE :

1. Python
2. R-Studio software
3. Power BI

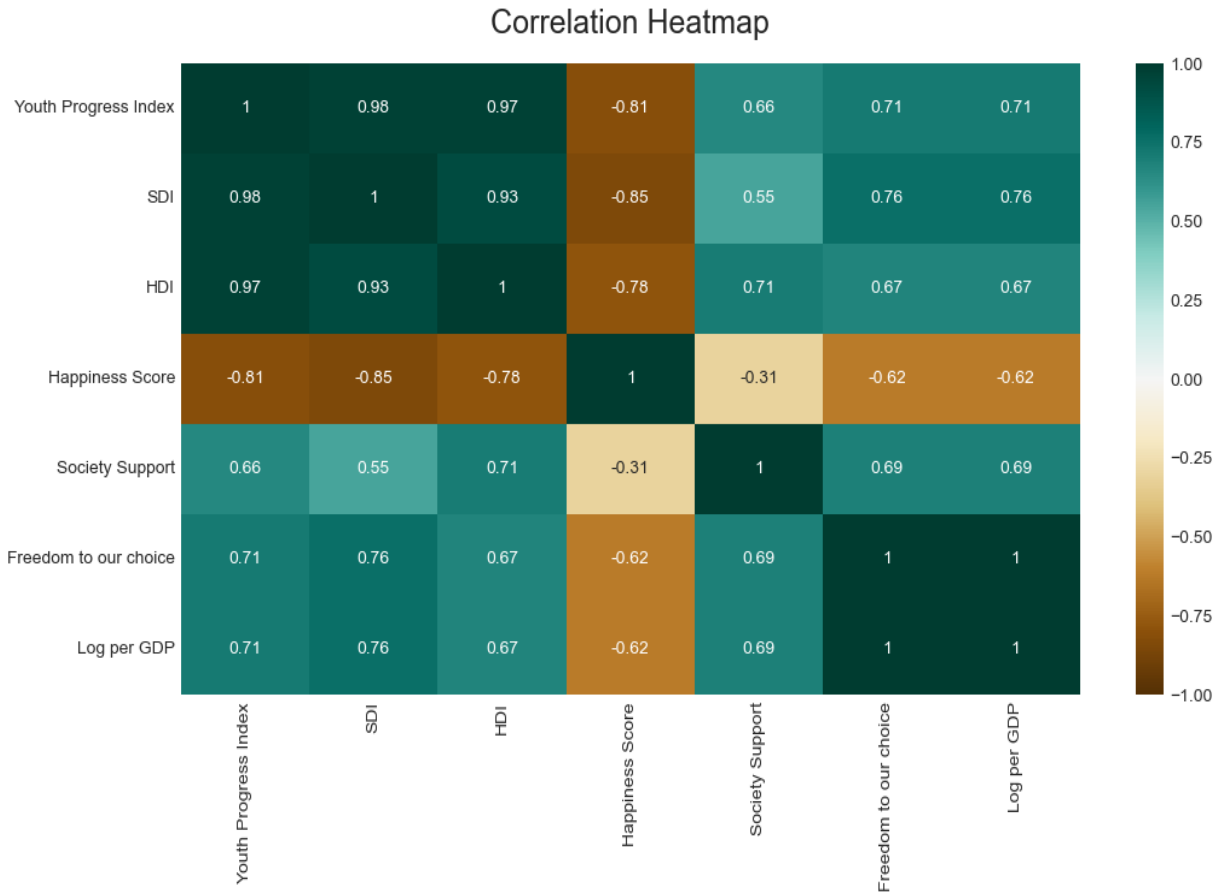
MICROSOFT TOOLS :

1. MS-Excel
2. MS-word
3. MS-PowerPoint

STATISTICAL ANALYSIS

Correlation using secondary data:

To find the strength of correlation between the YPI of the India and other indices of the India.

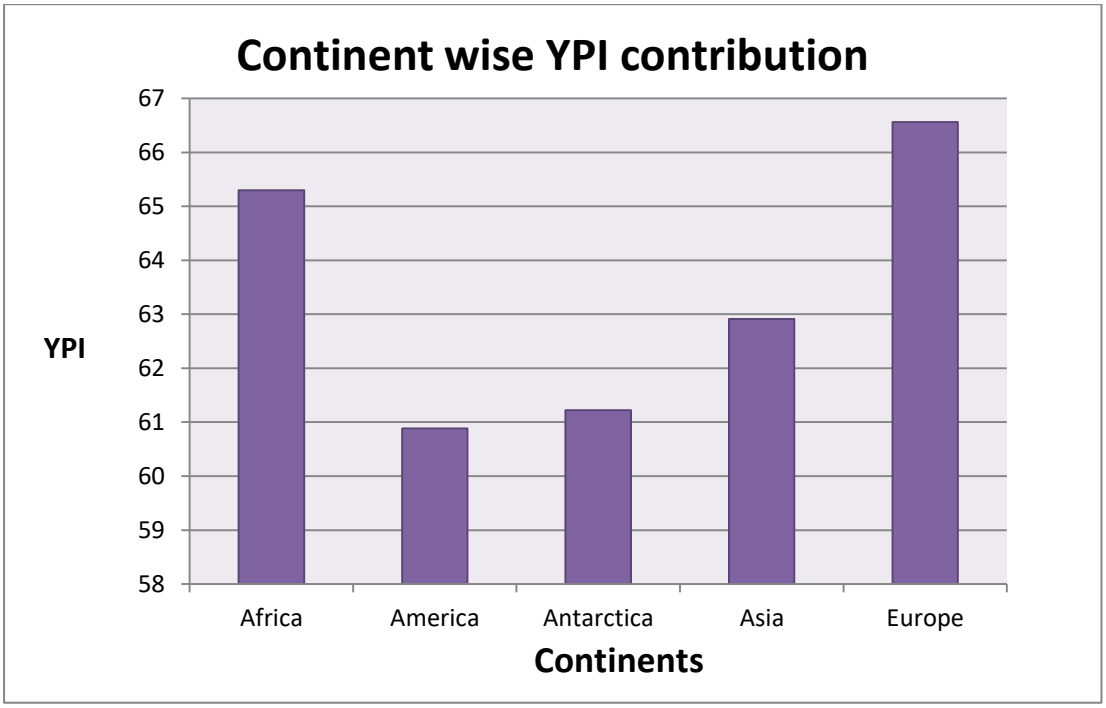


From the above heatmap plot, we see that the strength of the correlation between the YPI and SDI is 0.98. The strength of the correlation between YPI and HDI is 0.97. And the strength of correlation is between YPI and the happiness score is -0.81 and so on.

DATA AT A GLANCE:

Continents wise YPI contribution (Secondary Data):

BAR GRAPH :



From the above bar graph we see that, the YPI of Europe is 66.5588, which is higher than the all other continents.

For primary data:

The indexes of different dimensions are shown below:

HI	60.018
LS	69.9746
YA	93.8931
FI	98.9822
EI	32.5046
PDI	10.41221
II	71.145
YPI	**75.8057**

Assessment of Youth Development:

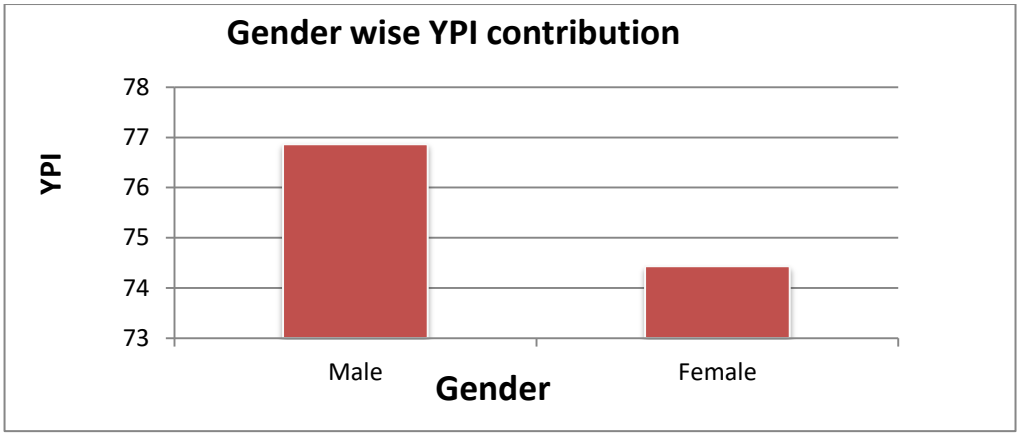
To understand youth's development, we have used different alternatives. To understand the aspects of development and decision making, we have considered the development attitude.

Summary of respondents(Primary Data):

Particulars		Respondents	Percentage
Gender	Male	74	56.48%
	Female	57	43.52%
Faculty	Arts	12	9.16%
	Commerce	4	3.05%
	Science	96	73.28%
	Humanities	5	3.81%
	Other	14	10.68%
Department	Department Of English	6	4.58%
	Department Of Chemistry	20	15.26%
	Department Of Statistics	28	21.37%
	Department Of Microbiology	9	6.87%
	Department Of Physics	9	6.87%
	Department Of Zoology	11	8.39%

Gender wise Youth Progress contribution(Primary Data):

Gender	YPI
Male	76.87
Female	74.43



The average individual Youth Development for female is 74.43, while for male is 76.87. This suggests that the male may have the slightly higher individual YPI than the female.

Chi Square test of independence:

H_0: There is no significance difference between the development of male and female.

VS

H_1: There is significance difference between the development of male and female.

Observed frequency:

	Low	High	Total
Male	33	41	74
Female	32	25	57
Total	65	66	131

Expected frequency:

	Low	High	Total
Male	36.71756	37.28244	74
Female	28.28244	28.71756	57
Total	65	66	131

$\chi^2_{cal} = 1.71698$

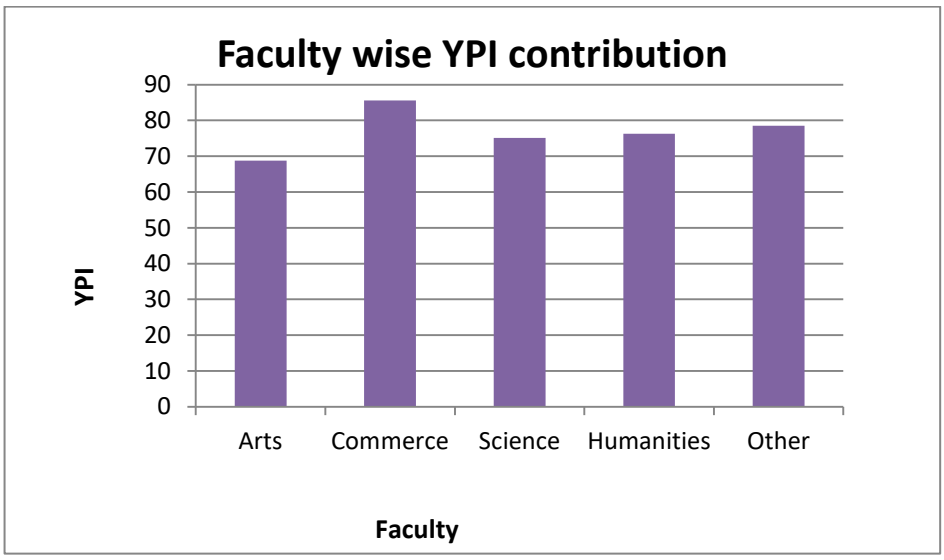
$\chi^2_{tab} = 3.841459$

As $\chi^2_{cal} < \chi^2_{tab}$ we accept H_0, and conclude that there is no significant difference between the development of male and female.

II) Faculty wise Youth Development contribution(Primary Data):

Faculty	YPI	Rank
Arts	68.8	5
Commerce	85.6	1
Science	75.1	4
Humanities	76.2	3
Other	78.5	2

Bar Chart:

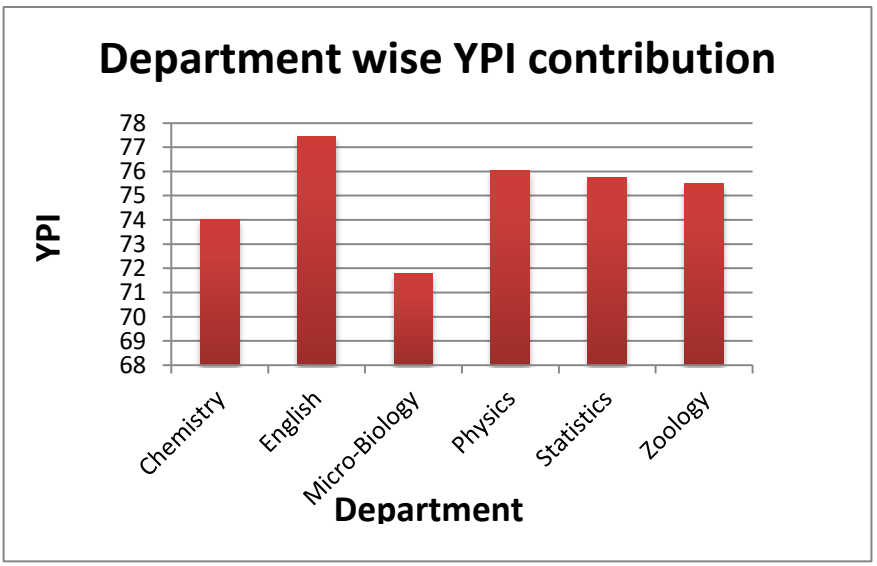


The students from the commerce faculty are developed more than the Arts, Science and Humanities faculties.

III) Department wise YPI contribution:

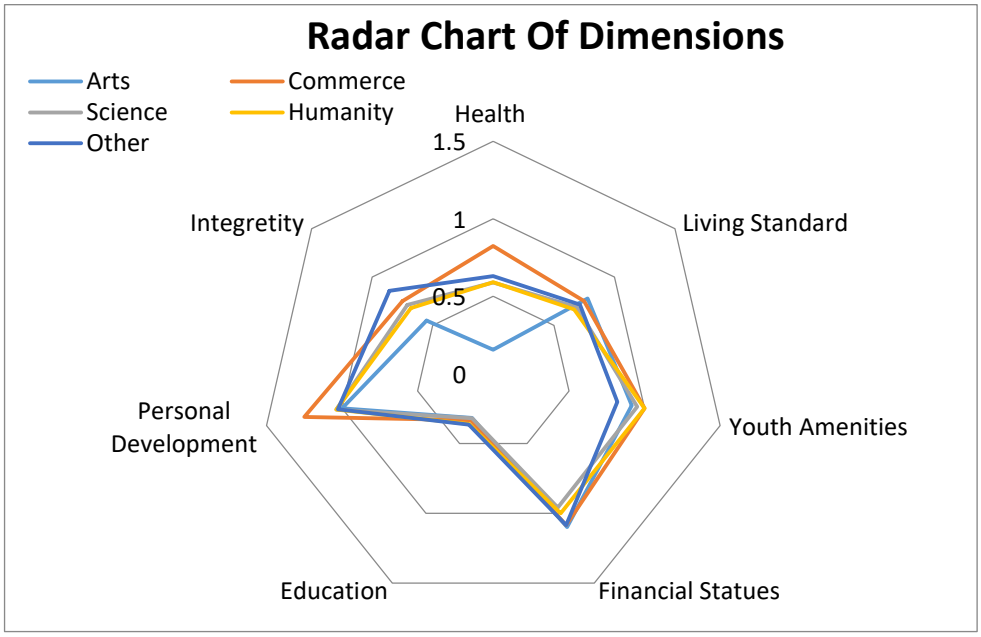
Department	YPI	Rank
Chemistry	74	5
English	77.4512	1
Micro-Biology	71.7798	6
Physics	76.0373	2
Statistics	75.7359	3
Zoology	75.5043	4

Bar chart:



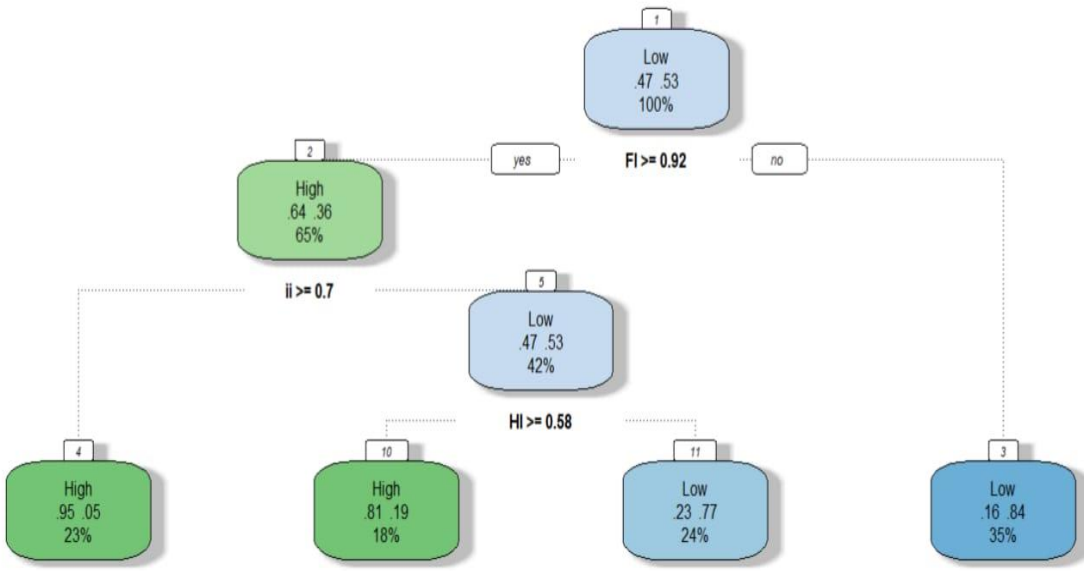
The students from English department are developed more than the department of Chemistry, Micro-biology, Physics, Statistics and Zoology.

Radar Chart:



Radar chart gives the multivariate data in the form of two dimensional chart. Above chart gives faculty wise comparison of YPI with respect to seven dimensions. The faculty of commerce has large area indicates that it has highest YPI than other faculties.

Tree Diagram:



Above tree diagram shows the YPI comparison with different dimensions. i.e. for the value of financial index(FI), if it is greater than 0.92, then there will be "High" YPI with probability 0.64 otherwise "Low" YPI with probability 0.84 and so on.

Logistic Regression:

- Fit the logistic regression to the given data to predict the Development among the students in the university based on their gender:

The fitted model is:

Y=The Youth Development is high or low.

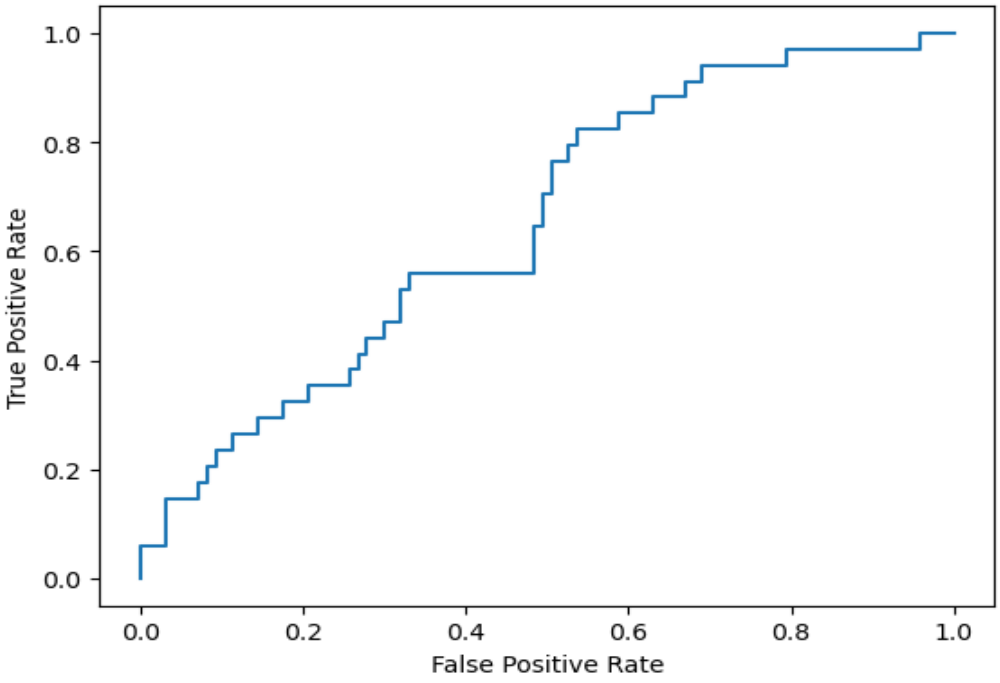
Youth Development = -0.0364+0.5632 *Gender

Interpretation:

Accuracy is the proportion of correct prediction over total predication. The accuracy with the logistic regression model is 58.12%. Here, gender has the significance impact on the Youth Development. Youth Development is changes with the gender.

Overall, the results of the logistic regression model indicate that it is a very accurate model for predicting the Youth Development of a student based on their gender. The model predicts the student's development with more than 60% accurately based on their gender.

RECEIVER OPERATING CURVE (ROC):



Interpretation:

The ROC curve is a graph that shows the trade-off between the true positive rate (TPR) and the false positive rate (FPR). The TPR is the proportion of true positives that are correctly identified, and the FPR is the proportion of false positives that are incorrectly identified. The AUC is the area under the ROC curve, and it is a measure of the overall performance of the model.

In this case, the AUC is 0.6514, which means that the model is able to correctly classify 65% of the observations.

- Fit the logistic regression to the given data to predict the Development among the student's in the university based on their gender and locality.
  The fitted model is:

  Y=The Youth Development is high or low.
  Youth Development = -0.2901+ 0.4696* Gender +0.1748* Locality

Interpretation:

Accuracy is the proportion of correct prediction over total predication. The accuracy with the logistic regression model is 69.85%. Here, gender and locality has the significance impact on the Youth Development. Youth Development is changes with the gender and locality.

REFERENCE

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THANK YOU…