VISVESVARAYA TECHNOLOGICAL UNIVERSITY
"Jnana Sangama", Belgavi-590 018, Karnataka, India

An Internship Report
On

"Machine Learning With AI using Python"

Along with the project

"ADMISSION PREDICTION ANALYSIS"

Submitted in Partial Fulfillment of the requirement for the award of the degree of

BACHELOR OF ENGINEERING
IN
COMPUTER SCIENCE AND ENGINEERING

Submitted By

Name: Venkatesh Murthy S R
USN: 1SJ18CS117

Under the guidance of

Internal Guide
Prof. Srinath G M
Assistant Professor
Dept. Of CSE, SJCIT

External Guide
Dr. Purbadri Ghosal
Mentor &Trainer
Knowledge Solutions India

S J C INSTITUTE OF TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
CHIKKABALLAPUR-562101

2021-2022

||Jai Sri Gurudev||

Sri Adichunchanagiri Shikshana Trust®

S.J.C INSTITUTE OF TECHNOLOGY, Chickballapur - 562101

Department of Computer Science and Engineering

CERTIFICATE

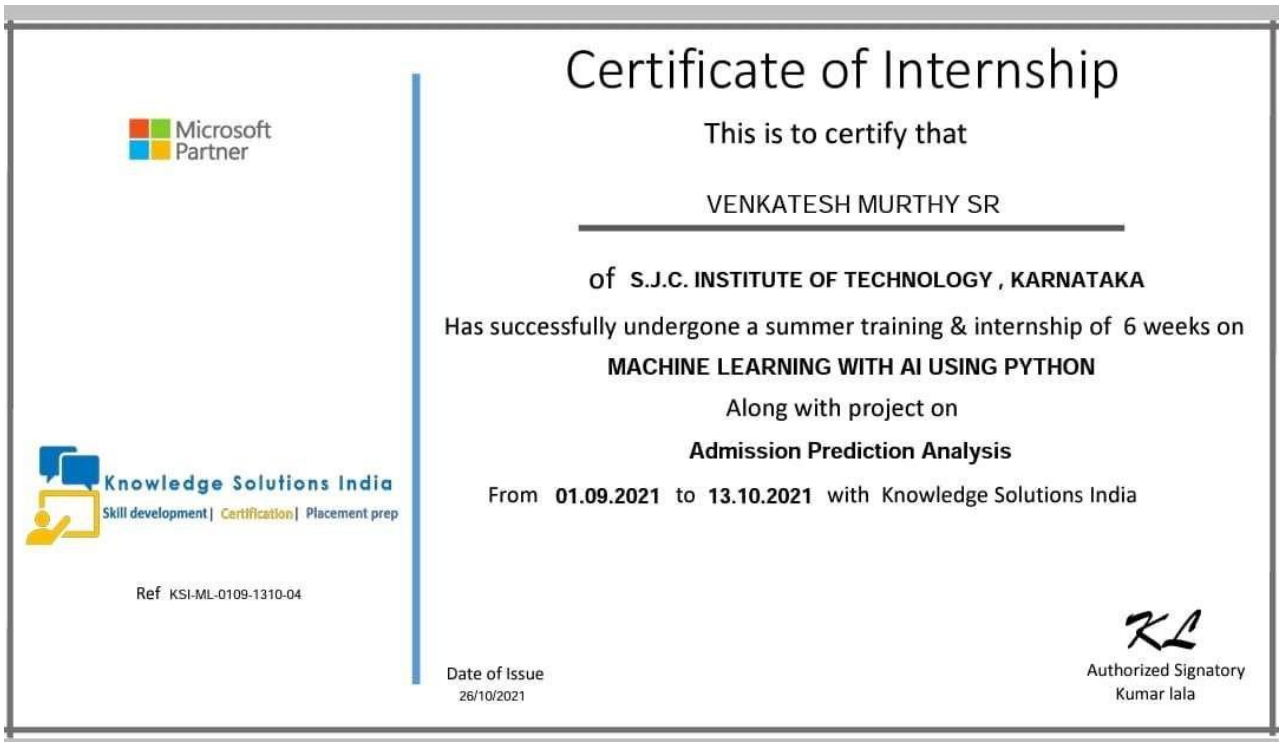
This is to certify that the Internship work entitled **"Machine Learning With AI Using Python" Along with the project "ADMISSION PREDICTION ANALYSIS"** carried out by **Venkatesh Murthy S R** bearing USN:1SJ18CS117 a bonafide student of Sri Jagadguru Chandrashekaranatha Institute of Technology in partial fulfilment for the award of **Bachelor of Engineering in Computer Science and Engineering** of **Visvesvaraya Technological University, Belgaum** during the year **2021-22**. It is certificated that all corrections / suggestions indicated for internal assessment have been incorporated in the report deposited in the departmental library. The Internship report has been approved as it satisfies the academic requirements in respect of Internship work prescribed for the said Degree.

.....	..... 11/9/22	.....
Signature of Guide	Signature of HOD	Signature of Principal
Prof. Srinath G M	**Dr. Manjunatha Kumar B H**	**Dr. G T Raju**
Assistant Professor	Professor & HOD,	Principal, SJCIT
Dept. of CSE, SJCIT	Dept. of CSE, SJCIT	

External Examiners:

Name of the Examiners	**Signature with Date**
1. S MANJUNATHA	25/11/2022

COMPANY CERTIFICATE



Microsoft Partner

Knowledge Solutions India
Skill development | Certification | Placement prep

Ref KSI-ML-0109-1310-04

Certificate of Internship

This is to certify that

VENKATESH MURTHY SR

of **S.J.C. INSTITUTE OF TECHNOLOGY , KARNATAKA**

Has successfully undergone a summer training & internship of 6 weeks on

MACHINE LEARNING WITH AI USING PYTHON

Along with project on

Admission Prediction Analysis

From **01.09.2021** to **13.10.2021** with Knowledge Solutions India

Date of Issue
26/10/2021

Authorized Signatory
Kumar lala

DECLARATION

I, **Venkatesh Murthy S R**, student of VIII semester B.E in Computer science & Engineering at S J C Institute of Technology, Chickballapur, hereby declare that the Internship work entitled "ADMISSION PREDICTION ANALYSIS" has been independently carried out by me under the supervision of **Prof. Srinath G M**, Assistant Professor of Department of CSE, and the coordinator **Prof. Swetha T** Assistant Professor, submitted in partial fulfillment of the course requirement for the award of degree in **Bachelor of Engineering** in **Computer Science & Engineering** of **Visveswaraya Technological University**, **Belgavi** during the year 2021-2022. I further declare that the report has not been submitted to any other University for the award of any other degree.

PLACE: CHICKBALLAPUR **STUDENT NAME: Venkatesh Murthy S R**
Date: 11 May 2022 **USN : 1SJ18CS117**

ABSTRACT

Many students nowadays are pursuing their education outside of their home nations. These international students are primarily interested in the United States of America, Canada, Ireland, and Germany. India and China account for the majority of international students in the United States. The number of Indian students pursuing postgraduate education in the United States has surged dramatically during the last decade. With the growing number of international students studying in the United States, each candidate must compete fiercely for admission to their preferred university.

In educational institutions, the issue of student admittance is critical. This research focuses on using machine learning models to predict a student's chances of being accepted into a master's degree. Students will be able to see ahead of time if they have a probability of being admitted. This project predicts a student's admittance based on a variety of factors such as the university's rating, the student's undergraduate GPA, GRE score, research experience, and so on. This forecasts whether or not the student will get admitted to the university of his choice. I employed a variety of methods in this study, including linear regression, artificial neural networks (ANN), random forest regression, and decision tree regression. Finally, I put this model on a Web-based GUI to check a student's acceptance possibilities, and it worked perfectly.

ACKNOWLEDGEMENT

With reverential pranam, we express my sincere gratitude and salutations to the feet of his holiness **Byravaikya Padmabhushana Sri Sri Sri Dr. Balagangadharanatha Maha Swamiji,** & his holiness **Jagadguru Sri Sri Sri Dr. Nirmalanandanatha Swamiji** of Sri Adichunchanagiri Mutt for their unlimited blessings. First and foremost, we wish to express my deep sincere feelings of gratitude to our institution, **Sri Jagadguru Chandrashekaranatha Swamiji Institute of Technology.** For providing me an opportunity for completing my internship work successfully.

I extend deep sense of sincere gratitude to **Dr. G T Raju**, **Principal, S J C Institute of Technology, Chickballapur**, for providing an opportunity to complete the Internship Work.

I extend special in-depth, heartfelt, and sincere gratitude to our HOD **Dr. Manjunatha Kumar BH, Professor and Head of the Department, Computer Science and Engineering, S J CInstitute of Technology, Chickballapur,** for his constant support and valuable guidance of the Internship Work.

I convey our sincere thanks to Internship Internal Guide **Prof. Srinath G M, Assistant Professor, Department of Computer Science and Engineering, S J C Institute of Technology,** for his constant support, valuable guidance and suggestions of the Internship Work.

I am thankful to Internship External Guide **Dr. Purbadri Ghosal, Knowledge Solutions India,** for providing valuable guidance and encouragement of the Internship Work.

I also feel immense pleasure to express deep and profound gratitude to our Internship Coordinator **Prof. Swetha T, Assistant Professor, Department of Computer Science and Engineering, S J C Institute of Technology,** for his guidance and suggestions of the Internship Work.

Finally, I would like to thank all faculty members of Department of Computer Science and Engineering, S J C Institute of Technology, Chickballapur for their support.

I also thank all those who extended their support and co-operation while bringing out this Internship Report.

Venkatesh Murthy S R (1SJ18CS117)

CONTENTS

LIST OF FIGURES

CHAPTER - 1

COMPANY PROFILE

1.1 History of the Organization

Knowledge Solutions India is corporation that specializes in certification and training. They provide international certifications from Microsoft, Apple, Adobe, EC Council, Autodesk, Quickbooks, and others as Microsoft Authorised Education Partners and Certiport CATC. And collaborate closely with colleges and universities around the country.

Another company, Quantum Learnings, is a Microsoft Global Training Partner and their daughter company, and MentorrBuddy is their own placement assistance tool that helps students find the best job preparation and applications.

The subject matter experts at KSI are highly qualified. These experts have extensive experience in their respective fields and are also certified. They are enthusiastic about the subjects they teach, and their webinars and courses reflect this enthusiasm.

They have the best technical training delivered across the country, whether anyone looking for Mobile application development, Progressive Web application development, Angular Js, Python, IoT, ML, AI, Data Science, Adv Excel, or Digital Marketing. All of their courses begin with no prerequisites, and their team makes every effort to ensure that a candidate only completes the program after acquiring the necessary skills.

1.1.1 Objectives

Their goal is to consistently deliver success to students by going the extra mile. To help their students meet their technological skills and career opportunities, they offer the right people, solutions, and services.

By leveraging leading technologies and industry best practices, they provide their students with the most efficient and effective training.

1.1.2 Operation of the Organization

The race for digital transformation is on. In this globally connected on-demand world with rapid advancements in internet technologies, businesses worldwide are under constant pressure to add innovative real-time capabilities to their applications to respond to market opportunities.

Every business worldwide is building event-driven, real-time applications - from financial services, transportation, and energy, to retail, healthcare, and Gaming companies.

Our endeavor is to make it easy to develop innovative real-time applications and efficient to operate them in production.

We have a proven record of building highly scalable, world-class consulting processes that offer tremendous business advantages to our clients in the form of huge cost-benefits, definitive results and consistent project deliveries across the globe.

We prominently strive to improve your business by delivering the full range of competencies including operational performance, developing and applying business strategies to improve financial reports, defining strategic goals and measure andmanage those goals along with measuring and managing them.

1.2 Major Milestones

Skills have become the global currency of the 21st century. In a world where competition for jobs, pay increases, and academic success continues to increase, certifications offer hope because they are a credible, third-party assessment of one's skill and knowledge for a given subject. Some of the key benefits achieved by the students by certification are Validation of knowledge**,** Increased marketability, Increased earning power, Enhanced academic performance, Improved reputation, Enhanced credibility, Increased confidence, Respect from peers. By Knowledge Solution India's certification, students has improved academic performance having, higher grade point average for certified college students from 6.9 to 7.8, higher graduation rates for certified college students: 78.4% to 94.5% and the dropout rates are reduced to 0.2% to 1.0%.

1.3 Structure of the Organization

Our super energetic and massive team at KSI is our core strength, forming an excellent blend of IT minds with a creative bent. Their goal is to keep improving and delivering the skills that will help students have a successful career in the IT industry.

Taking advantage of our highly skilled and experienced trainers. We are primarily a student-centered organization dedicated to exceeding students' expectations in terms of meeting their needs. They successfully hosted a group of seasoned professionals.

Trainers who collaborate in order to provide their students with the knowledge they need to advance in their careers. They take pride in being a sought-after Skill development after delivering successful internships. They have successfully delivered value to our students as well as colleges over the years. They truly believe that the success of their students is their success, and they do not consider themselves to be a vendor for their program. We'd like to hear some of their stories and learn how far they've gone to ensure the success of our students, and they'll do everything they can to make that happen.

1.4 Services Offered

Training / Internships form a very important part of students over all development that's why AICTE and Universities have made it mandatory for every engineer and MCA to undergo the same, we help students in achieving this goal by helping them acquire latest skills and provide them with hands on projects.

1. **Machine Learning and Internship Program.**

Learn Machine learning**,** an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed, bundled with Microsoft MTA Certification

2. **Data Science and Internship Program**

Learn Data science and how to use scientific methods, processes, algorithms and systems to extract knowledge and insights from structured and unstructured data as one of the hottest professions in the market today, bundled with Microsoft MTA Certification

3. **Java Certificate Program**

Learn Java one of the most popular programming languages used in the development of Web and Mobile applications. It is designed for flexibility, allowing developers to write code that would run on any machine, regardless of architecture or platform Bundled with Microsoft MTA Certification

4. **Cyber Security Certified Associate**

Learn the ethical way of how to do penetration testing and other testing methodologies that ensures the security of an organization’s information systems, bundled with Microsoft MTA Certification.

5. Internet of Things

Learn how to work with connected devices use sensors and raspberry PI3 and connect these devices to cloud to identify patterns and extract meaning-full information out of it, bundled with Microsoft MTA Certification

6. Business Analytics

Learn Business Analytics and how it enables companies to automate and optimize their business processes in-fact Data-driven companies treat their data as a corporate asset and leverage it for a competitive advantage as they are able to use the insights to find new patterns and relationships.

7. Digital Marketing

Learn Digital Marketing and how its used for promoting products or services online via internet, companies are gaining higher profitability and return on investment by having their Digital marketing strategies in place the program is bundled with Google Certification

CHAPTER – 2

ABOUT THE DEPARTMENT

2.1 Specific Functionalities of the Department

Our department of tech support majorly focused on manage, maintain and repair IT systems.

The Special functionalities include

- Understanding the work to be completed.
- Planning the assigned activities in more detail if needed
- Completing assigned work within the budget, timeline and quality expectations
- Informing the project manager of issues, scope changes, risk and quality concerns
- Proactively communicating status and managing expectation

2.2 Process Adopted

The department aims to first understand the user requirements. Further on, a basic structure of the product that needs to be built is drawn and understood. Eventually, the technologies that would best help in developing the product are understood. If the product has database requirements, the schema and the database design are worked upon. The department believes in “Think before you code”- the requirements and logics are first understood over a paper and then are moved to a code form. Agile processes generally promote a disciplined project management process that encourages frequent inspection and adaptation, a leadership philosophy that encourages teamwork, self-organization and accountability, a set of engineering best practices intended to allow for rapid delivery of high-quality software, and a business approach that aligns development with customer needs and company goals. Agile development refers to any development process that is aligned with the concepts of the Agile Manifesto. The Manifesto was developed by a group fourteen leading figures in the software industry, and reflects their experience of what approaches do and do not work for software development.

2.3 Testing

Testing was done according to the Corporate Standards. As each component was being built, Unit testing was performed in order to check if the desired functionality is obtained. Each component in turn is tested with multiple test cases to verify if it is properly working. These unit tested components are integrated with the existing built components and then integration testing is performed. Here again, multiple test cases are run to ensure the newly built component runs in co-ordination with the existing components. Unit and Integration testing are iteratively performed until the complete product is built. Once the complete product is built, it is again tested against multiple test cases and all the functionalities.

The product could be working fine in the developer's environment but might not necessarily work well in all other environments that the users could be using. Hence, the product is also tested under multiple environments (Various operating systems and devices). At every step, if a flaw is observed, the component is rebuilt to fix the bugs. This way, testing is done hierarchically and iteratively.

2.4 Structure of the Department

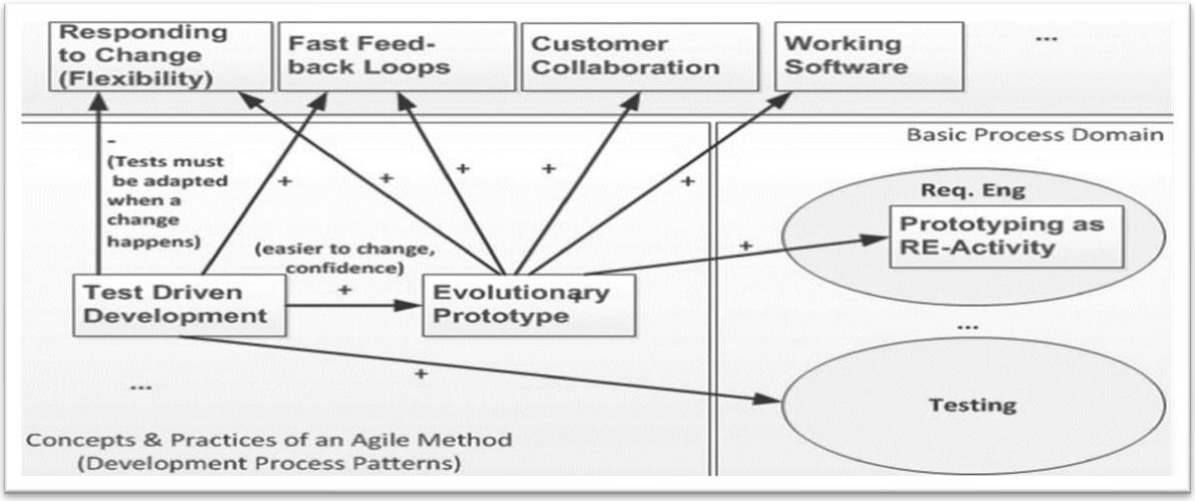


Figure 2.4.1 Structure of the Department

2.5 Roles and Responsibilities of Individuals

Since the internship was remotely conducted by the company, to ensure easy onboarding of interns, the company had individuals who took care of the smooth run of online training.

- Operation and Strategy Head- Ensured there were no difficulties for interns while onboarding. Best of mentors and doubt clarifying sessions were arranged too.
- Technical Lead- Ensured the technicalities of online training to be smooth. Best platforms were arranged for our meetings and trainings.
- Mentors- They have helped us to understand the concepts, gave us tasks to get practical take a way and clarified doubts to the best.
- Interns- Worked through the tasks given either individually or in a group

CHAPTER – 3

TASK PERFORMED

In this Internship Machine Learning with Python using AI it was divided into two parts one is front enddevelopment and one more is backend course.

Training Program

The internship is a platform where the trainees are assigned with the specific task. In the initial days of the internship, I was trained on the following:

- Python Programming
- Artificial Intelligence
- Machine Learning Algorithms

DATA SET

This section describes, in brief, the data that has been used for the research. Data from multiple sources was used in this project, the major amount of data was extracted from public website Yocket (Yocket.com), data regarding the rankings, fees and enrolment in colleges was obtained from a leading educational consultancy firm The Mentors Circle in India. Data from both the sources was integrated together to form a staging data-set. For predicting the chance of a student getting shortlisted in universities the final data-set was divided into multiple data-sets each representing a particular university. For predicting the list of universities suitable for students based on their profile data of all the students the staging data-set was updated only to have records of students who had successfully secured admission in the universities. Below table shows the different features of the data-sets.

FIELD	DESCRIPTION
GRE	Marks scored by the student in GRE
TOEFL Score	Marks scored by the student in English Proficiency Test
Ranking	The University Ranking
SOP	Quality of Statement of Purpose or Statement of Intent
LOR	Quality of Letter of Recommendations documents
CGPA	Result of the student in their Undergraduate Course
Research	Relevant experience in Research field.

DATASET EXTRACTION AND TRANSFORMATION

Data related to the college ranking was collected in .csv format, the data related to students' profile was extracted using data extraction tool provided by (Mozenda (n.d.)) in .csv files. Data being from public portal had multiple records with missing and irrelevant values; data cleaning was performed in Microsoft Excel by deleting the records having unwanted and missing values. Unwanted columns were removed from the data-set. Once the data-set was cleaned data was transformed to be suitable for the model. The original data-set had TOEFL score as a representation of language, to have a consistent metrics for the language score. Similarly, the Undergraduate score of the students were represented in terms of percentage and CGPA; all the records of percentage were converted to CGPA by multiplying percentage score by 9.5.

Algorithms

- Linear Regression

  Linear Regression is a machine learning algorithm based on supervised learning. It performs a regression task. Regression models a target prediction value based on independent variables. It is mostly used for finding out the relationship between variables and forecasting. Different regression models differ based on – the kind of relationship between dependent and independent variables they are considering, and the number of independent variables getting used.

- Artificial Neural Networks

  It intended to simulate the behavior of biological systems composed of "neurons". ANNs are computational models inspired by an animal's central nervous systems. It is capable of machine learning as well as pattern recognition. These presented as systems of interconnected "neurons" which can compute values from inputs. A neural network is an oriented graph. It consists of nodes which in the biological analogy represent neurons, connected by arcs. It corresponds to dendrites and synapses. Each arc associated with a weight while at each node. Apply the values received as input by the node and define Activation function along the incoming arcs, adjusted by the weights of the arcs. A neural network is a machine learning algorithm based on the model of a human neuron. The human brain consists of millions of neurons. It sends and process signals in the form of electrical and chemical signals. These neurons are connected with a special structure known as synapses. Synapses allow neurons to pass signals. From large numbers of simulated neurons neural networks forms.

In my Six weeks Internship I have undergone through three phases:

- Training Phase
- Designing and Development Phase
- Testing and Maintenance Phase

As the final task, a main project was developed using machine learning models to predict the chance of a student to be admitted to a master's program. This will assist students to know in advance if they have a chance to get accepted. This project predicts the admission of a student based on different features including university rating, student's undergraduate GPA, GRE score, research experience and etc. This predicts that how much chances are there that the student will get admission in his selected university or not. In this project I have used multiple algorithms including linear regression, artificial neural network (ANN), random forest regressor, decision tree regressor. In the end I have deployed this model on a Web Based GUI to check student's admission chances and these models are working fine.

CHAPTER – 4

REFLECTION NOTES

4.1 Experience

According to our internship experience, Knowledge Solutions India offers a positive work culture and courteous personnel at all levels, from staff to management. The instructors are knowledgeable in their subjects and treat everyone fairly. There are no distinctions made between new graduates and corporate executives, and everyone is treated equally. Every activity, no matter how difficult or simple, requires a lot of teamwork, and the mood is always peaceful and welcoming. Because of the excellent communication and support available, there is a lot of room for self-improvement. Interns were well treated and educated, and all of our questions and concerns about the training or the firms were addressed. All in all, Knowledge Solutions India was a great place for a fresher to start career and also for a corporate to boost his/her career. It has been a great experience to be an intern in such a reputed organization.

4.2 Technical Outcomes

4.2.1 System Requirements and Specification

HARDWARE REQUIREMENTS:

- Processor : x86 or x64
- Hard Disk : 216 GB or more.
- Ram : 512 MB (minimum), 1 GB(recommended)

SOFTWARE REQUIREMENTS:

- Operating System : Windows or Linux
- Development Environment : Anaconda Navigator (Jupiter Notebook or Spyder)

4.3 System Analysis and Design

4.3.1 Existing System

(Bibodi et al. (n.d.)) used multiple machine learning models to create a system that would help the students to shortlist the universities suitable for them also a second model was created to help the colleges to decide on enrolment of the student. Nave Bayes algorithm was used to predict the likelihood of success of an application, and multiple classification algorithms like Decision Tree, Random Forest, Nave Bayes and SVM were compared and evaluated based on their accuracy to select the best candidates for the college.

GRADE system was developed by (Waters and Miikkulainen (2013)) to support the admission process for the graduate students in the University of Texas Austin Department of Computer Science. The main objective of the project was to develop a system that can help the admission committee of the university to take better and faster decisions. Logistic regression and SVM were used to create the model, both models performed equally well and the final system was developed using Logistic regression due to its simplicity. The time required by the admission committee to review the applications was reduced by 74% but human intervention was required to make the final decision on status if the application. (Nandeshwar et al. (2014)) created a similar model to predict the enrolment of the student in the university based on the factors like SAT score, GPA score, residency race etc. The Model was created using the Multiple Logistic regression algorithm, it was able to achieve accuracy rate of 67% only.

4.3.2 Disadvantages of the Existing System

- Limitation of this system only relied on the GRE, TOEFL and Undergraduate Score of the student and missed on taking into consideration other important factors like SOP and LOR.
- The existing system lagged the factor of the research work in the related field.
- This model achieved only 67% accuracy.

4.3.3 Proposed System

The principal objective of the research is to help the students who are aspiring to pursue their education in the USA. The Graduate Admissions Prediction system will help them to evaluate the chances of success in any university without being dependent on any education consultancy firm. It will help them in saving a huge amount of time and money spent in the application process. Also, it will help them to limit the number of applications made by the students by suggesting them the best universities where they have high chances of securing admission thereby by saving the amount of money spent by the students by applying in universities where they have less chance to secure admit based on their profile.

4.3.4 Advantages of the Proposed System

- Information about the prediction analysis is clear to enter all the required information to predict the admission.
- The user interface code will interact with the Linear Regression, ANN, random forest regressor, decision tree regressor to provide the users with the required result.
- The ANN algorithm and Linear Regression Algorithm will be used to determine the chance of the student of securing admission in a particular university based on his/her profile.
- Once the models have been executed the result will be provided to the student as the output on the user interface.

4.1 System Architecture

4.3.1 Data Flow Diagram

The machine learning models are trained with the given dataset. The machine learning models used in this project are linear regression, artificial neural network (ANN), random forest regressor, decision tree regressor. Once the models are trained, the student's profile details are entered to predict the chances of getting the admit to the university.

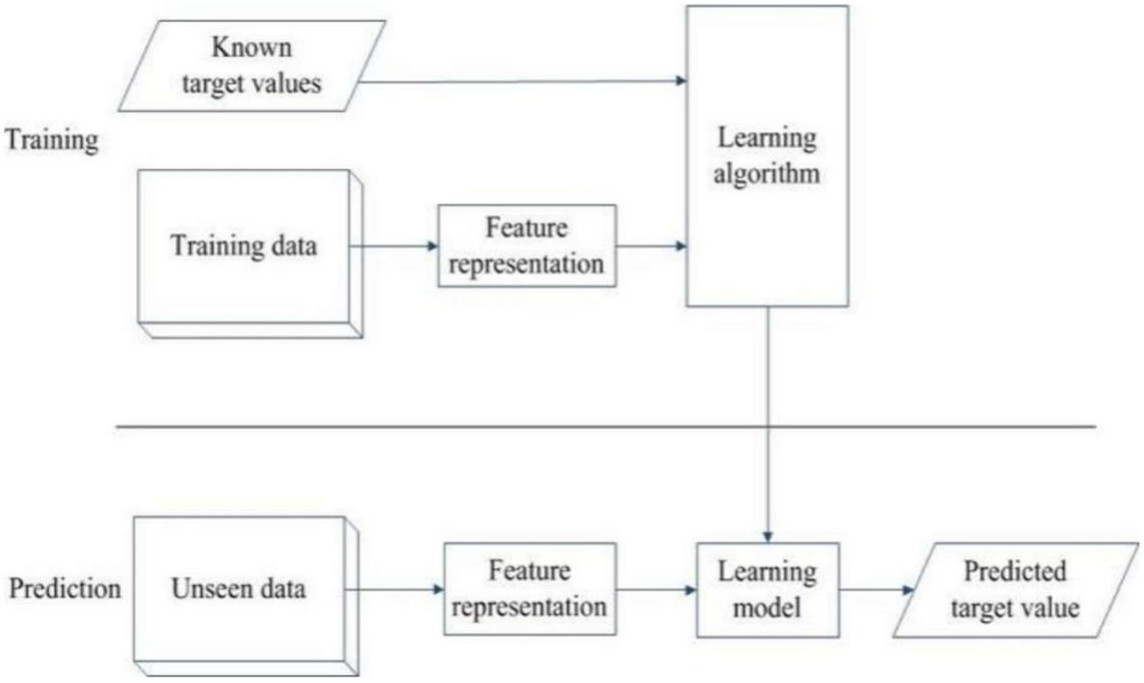


Figure 4.4.1.1 Dataflow diagram of Admission Prediction

4.2 Implementation

4.2.1 Modules

1. Exploratory Data Analysis in Machine Learning
2. Data Visualization
3. Training and Testing
4. Train and Evaluate Linear Regression
5. Train and Evaluate Artificial Neural Network

MODULES DESCRIPTION

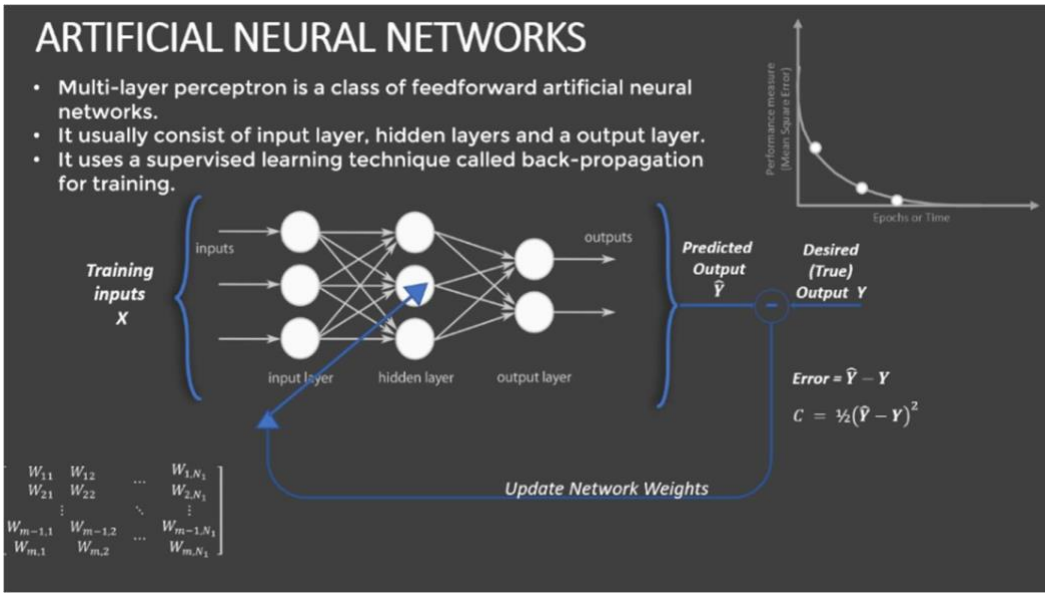
Exploratory Data Analysis: Performed initial investigations on data so as to discover patterns, to spot anomalies, to test hypothesis and to check assumptions with the help of summary statistics and graphical representations.

Data Visualization: Using data visualization, I summarized the data with graphs, pictures and maps, so that the human mind has an easier time processing and understanding the given data. Data visualization plays a significant role in the representation of both small and large data sets, but it is especially useful when we have large data sets, in which it is impossible to see all of our data, let alone process and understand it manually.

Training and Testing: In this project, datasets are split into two subsets. The first subset is known as the training data - it's a portion of our actual dataset that is fed into the machine learning model to discover and learn patterns. In this way, it trains our model. The other subset is known as the testing data.

Train and Evaluate Linear Regression: Simple linear regression is an approach for predicting a quantitative response using a single feature (or "predictor" or "input variable"). It takes the following form: $y=\beta 0+\beta 1x$

Train and Evaluate Artificial Neural Network:



4.4 Screenshots

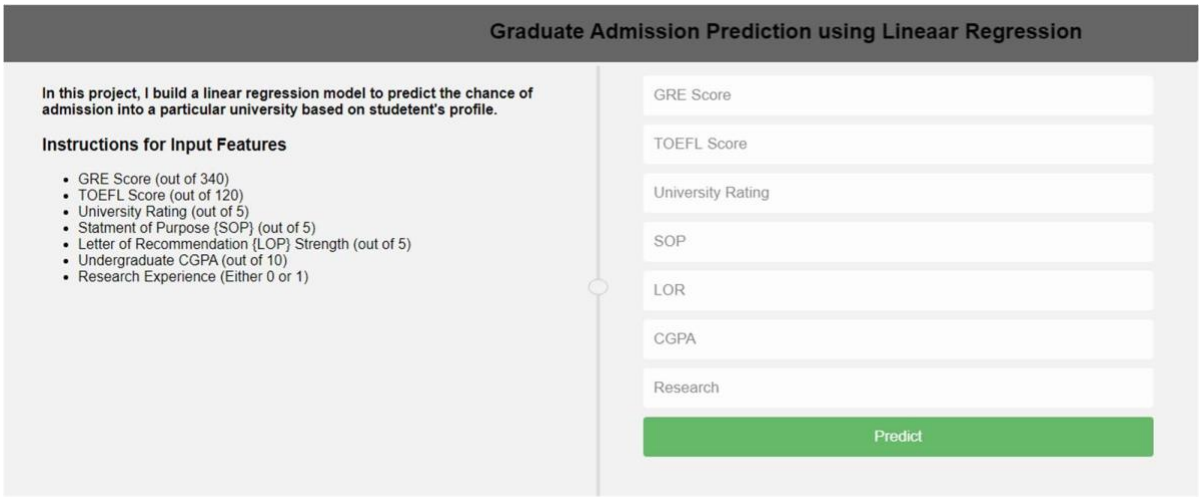


Figure 4.6.1 Home Page

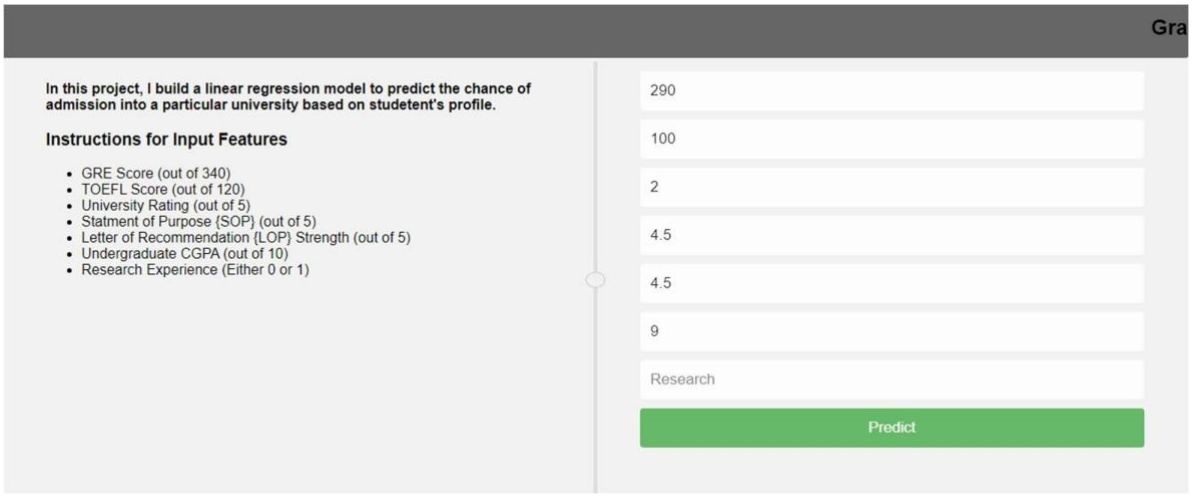


Figure 4.6.2 Input Details

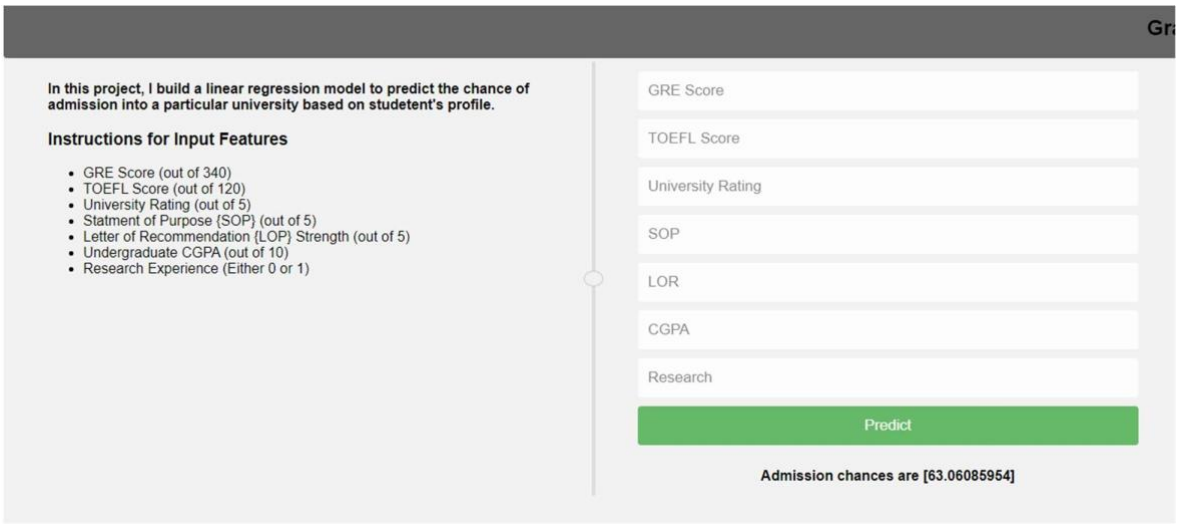


Figure 4.6.3 Prediction

CHAPTER – 4

CONCLUSION

The major goal of this study was to create a prototype of a system that students interested in studying in the United States might use. For this study, several machine learning algorithms were created and used. When compared to the Logistic regression model, Linear Regression demonstrated to be the greatest fit for system development. The programme was designed with a basic user interface to make it interactive and simple to use for non-technical people.

The ultimate goal of the study was met since the approach allows students to save time and money that they would otherwise spend on education advisors and application fees for colleges where they have a lower chance of being accepted. It will also assist students in making better and faster decisions on university applications.

BIBLIOGRAPHY

- Bibodi, J., Vadodaria, A., Rawat, A. and Patel, J. (n.d.). Admission Prediction System Using Machine Learning.

- Abdul Fatah S; M, A. H. (2012). Hybrid Recommender System for Predicting College Admission, pp. 107–113.

- College Admission Predictor Journal of Network Communications and Emerging Technologies (JNCET), Volume 8, Issue 4, April (2018).

- Prediction of Admission Process for Gradational Studies using Al Algorithm by Saurabh Singhal, Ashish Sharma. European Journal of Molecular &Clinical Medicine Vol 7, Issue 4.

- Graduate Admission Prediction Using Machine Learning December 2020 DOI:10.46300/91013.2020.14.13

APPENDIX

Appendix A: Abbreviation

IDE: Jupyter notebook is an open-source IDE that is used to create Jupyter documents that can be created and shared with live codes. Also, it is a web-based interactive computational environment. The Jupyter notebook can support various languages that are popular in data science such as Python, Julia, Scala, R, etc.

ANN: Artificial Neural networks (ANN) or neural networks are computational algorithms. It intended to simulate the behavior of biological systems composed of "neurons". ANNs are computational models inspired by an animal's central nervous systems. It is capable of machine learning as well as pattern recognition.

AI: Artificial intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions. The term may also be applied to any machine that exhibits traits associated with a human mind such as learning and problem-solving.

ML: Machine learning (ML) is a type of artificial intelligence (AI) that allows software applications to become more accurate at predicting outcomes without being explicitly programmed to do so. Machine learning algorithms use historical data as input to predict new output values.