Architectural Design

Campus Placement Prediction

Revision Number: 1.8

Last date of revision: 25/10/2022

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Document Version Control

Date Issued	Version	Description	Author
18th April 2022	1.1	First Draft	Abishek Bhat. R
20th April 2022	1.2	Added Workflow chart	Abishek Bhat. R
20th April 2022	1.3	Added Exception Scenarios Overall, Constraints	Abishek Bhat. R
26th April 2022	1.5	Added user I/O flowchart	Abishek Bhat R. S
31st April 2022	1.7	Added dataset overview and updated user I/O flowchart.	Abishek Bhat R. S
02nd May 2022	1.8	Restructure and reformat LLD	Abishek Bhat. R

Contents

Abstract

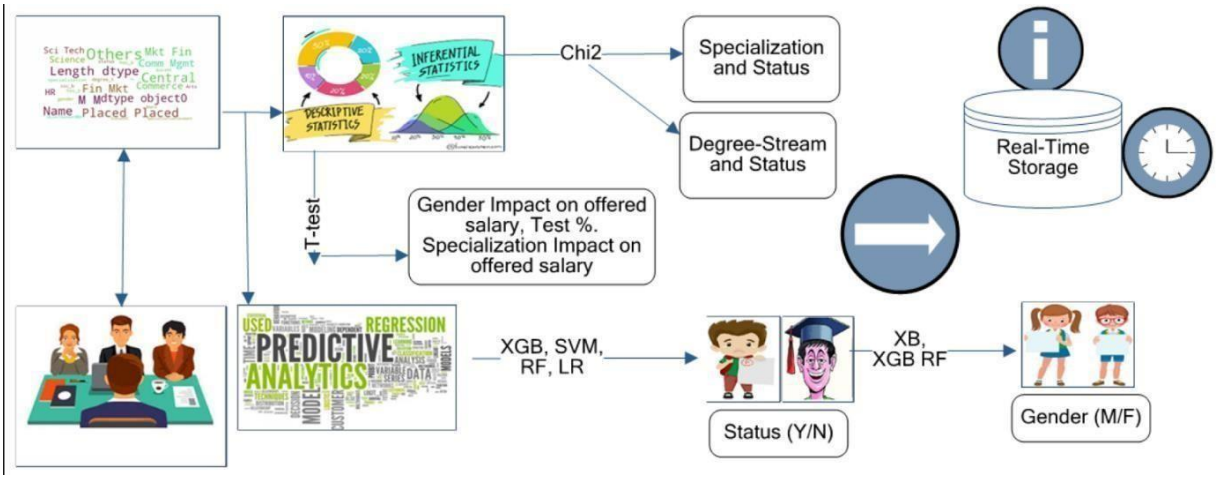
One of the most crucial goals of an educational institution is student placement. An institution's reputation and yearly admissions are inextricably linked to the placements it offers its students. Institutions work very hard to place students in appropriate positions. The institution will always benefit from this. By examining the data gathered from students from the previous year, the goal is to estimate where the students will be placed for the upcoming academic year. This model is suggested along with an algorithm to make the same prediction. The institution for which forecast will be made has gathered the data by using the appropriate data pre-processing procedures. Utilizing the Support Vector Machine [SVM] technique, this model was created. This algorithm, which is based on the dataset, independently predicts the outcomes. We then compare the algorithm's effectiveness. This model considers secondary school grades, academic CGPA from both UG and PG technical education to date, as well as some other characteristics that add weight to help launch a career.

1 Introduction

1.1 Why this Low-Level Design Document?

The purpose of this document is to present a detailed description of the Campus Placement Prediction System. It will explain the purpose and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate and how the system will react to external stimuli. This document is intended for both the stakeholders and the developers of the system and will be proposed to the higher management for its approval.

The main objective of the project is to predict whether a student is placed or not based on the given dataset.



1.2 Scope

We have created a model to verify whether or not a student will be hired during a campus recruiting campaign. This model will assist both students and organizations in planning well in advance for campus recruitment. The major goal of this model is to forecast the likelihood of placement in order to determine the student's standing and capabilities. Additionally, this aids in enhancing the performance of prospective students for both students and schools. This model will take into account the student's academic record, including their graduation rate, as well as the domains and specialties that have undergone company testing. On the student data acquired from the institution the previous year, we applied the SVM algorithm. This methodology considers secondary school student test results as well as academic

1.3 Constraints

We will only be selecting a few of the educational parameters.

1.4 Risks

Document specific risks that have been identified or that should be considered.

1.5 Out of Scope

Delineate specific activities, capabilities, and items that are out of scope for the project.

2 Technical specifications

2.1 Dataset

Parameters	Finalized	Source
• gender - sex of the student • secondary education percentage-marks obtained in secondary education • higher secondary percentage-marks obtained in higher secondary education • degree percentage-marks obtained in degree • Under-graduation(Degree-type)-Field of degree education • Work-experience • Employability-test-package • specialisation-field of study	yes	https://www.kaggle.com/c/ml-with-python-course-project/data

2.1.1 Campus placement prediction dataset overview

File descriptions

- train.csv - the training set
- test.csv - the test set
- SampleSubmission.csv - a sample submission file in the correct format.

Data fields

- gender - sex of the student
- secondary education percentage-marks obtained in secondary education
- higher secondary percentage-marks obtained in higher secondary education
- degree percentage-marks obtained in degree
- Under-graduation(Degree-type)-Field of degree education
- Work-experience
- Employability-test-package
- specialization-field of study

There are a total of 250 students in the training set.

- Student information table with various parameters

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	sl_no	gender	ssc_p	ssc_b	hsc_p	hsc_b	hsc_s	degree_p	degree_t	workex	etest_p	specialisat	mba_p	status	salary
2	1	0	67	Others	91	Others	Commerce	58	Sci&Tech	No	55	Mkt&HR	58.8	Placed	270000
3	2	0	79.33	Central	78.33	Others	Science	77.48	Sci&Tech	Yes	86.5	Mkt&Fin	66.28	Placed	200000
4	3	0	65	Central	68	Central	Arts	64	Comm&M	No	75	Mkt&Fin	57.8	Placed	250000
5	4	0	56	Central	52	Central	Science	52	Sci&Tech	No	66	Mkt&HR	59.43	Not Placed	
6	5	0	85.8	Central	73.6	Central	Commerce	73.3	Comm&M	No	96.8	Mkt&Fin	55.5	Placed	425000
7	6	0	55	Others	49.8	Others	Science	67.25	Sci&Tech	Yes	55	Mkt&Fin	51.58	Not Placed	
8	7	1	46	Others	49.2	Others	Commerce	79	Comm&M	No	74.28	Mkt&Fin	53.29	Not Placed	
9	8	0	82	Central	64	Central	Science	66	Sci&Tech	Yes	67	Mkt&Fin	62.14	Placed	252000
10	9	0	73	Central	79	Central	Commerce	72	Comm&M	No	91.34	Mkt&Fin	61.29	Placed	231000
11	10	0	58	Central	70	Central	Commerce	61	Comm&M	No	54	Mkt&Fin	52.21	Not Placed	
12	11	0	58	Central	61	Central	Commerce	60	Comm&M	Yes	62	Mkt&HR	60.85	Placed	260000
13	12	0	69.6	Central	68.4	Central	Commerce	78.3	Comm&M	Yes	60	Mkt&Fin	63.7	Placed	250000
14	13	1	47	Central	55	Others	Science	65	Comm&M	No	62	Mkt&HR	65.04	Not Placed	
15	14	1	77	Central	87	Central	Commerce	59	Comm&M	No	68	Mkt&Fin	68.63	Placed	218000

2.1.2 Input schema

Feature name	Datatype	Size	Null/Required
Gender	char	10	Required
Secondary education percentage[10^{th} %]	float	5	Required

Higher Secondary education percentage[12th %]	float	5	Required
Specialisation in higher secondary education	String	20	Required
Degree percentage	float	5	Required
Under graduation	String	10	Required
Work Experience	char	1	Required
Employability test percentage	float	5	Required
Specialisation	String	10	Required
MBA percentage	float	5	Required

2.2 Predicting the results

- The system displays the choices to various fields as mentioned.
- The User chooses the target by clicking one of the available options.
- The system presents the set of inputs required from the user.
- The user gives required information.
- The system should be able to predict whether the student gets placed or not based on the user information.

2.3 Logging

- We should be able to log every activity done by the user. The System identifies at what step logging required.
- The System should be able to log each and every system flow.
- Developers can choose logging methods. You can choose database logging/ File logging as well.

- System should not hang even after using so many loggings. Logging just because we can easily debug issues so logging is mandatory to do.

2.5 Deployment

1. STREAMLIT

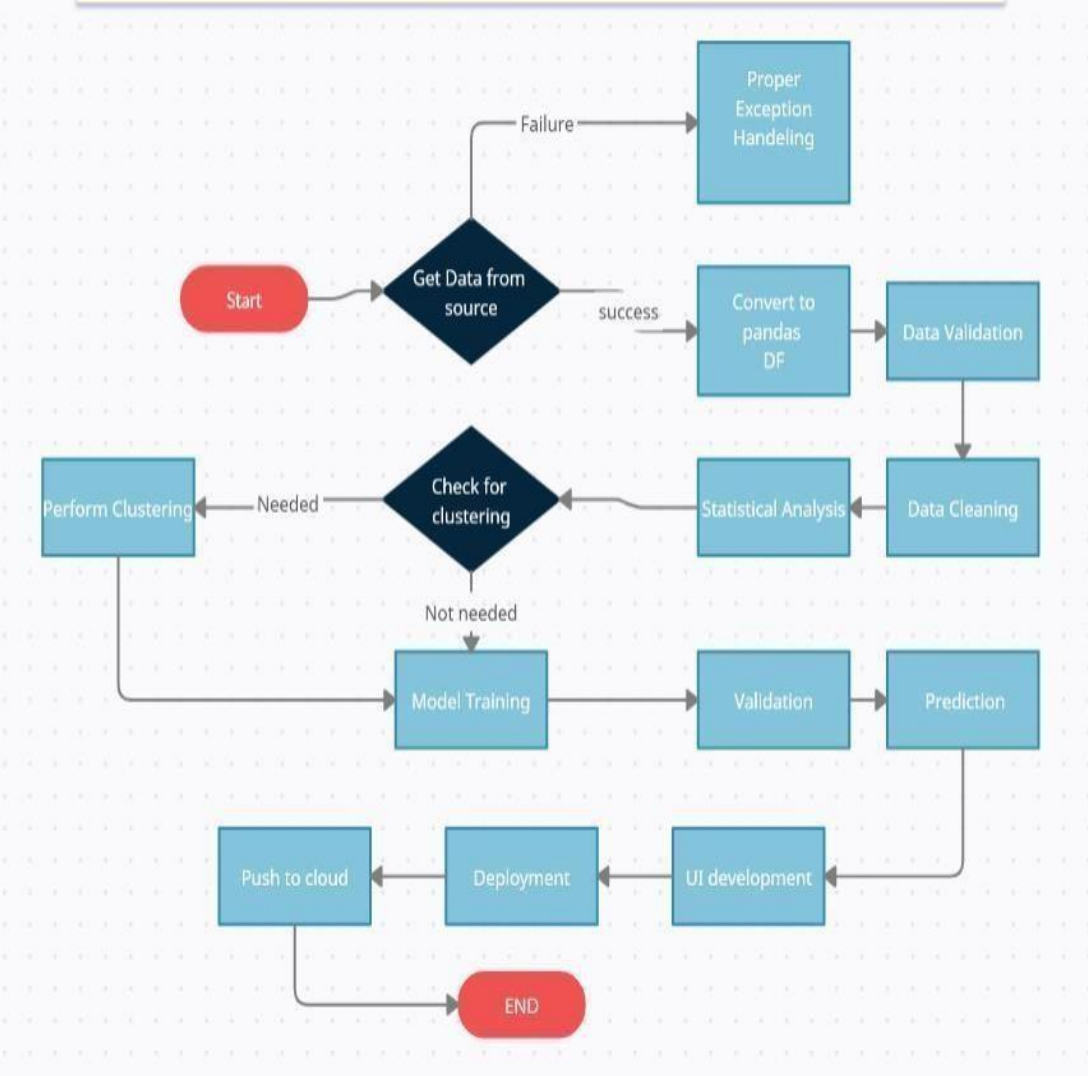
3 Technology stack

Front End	HTML/CSS/JS
Backend	Python Flask
Deployment	Streamlit

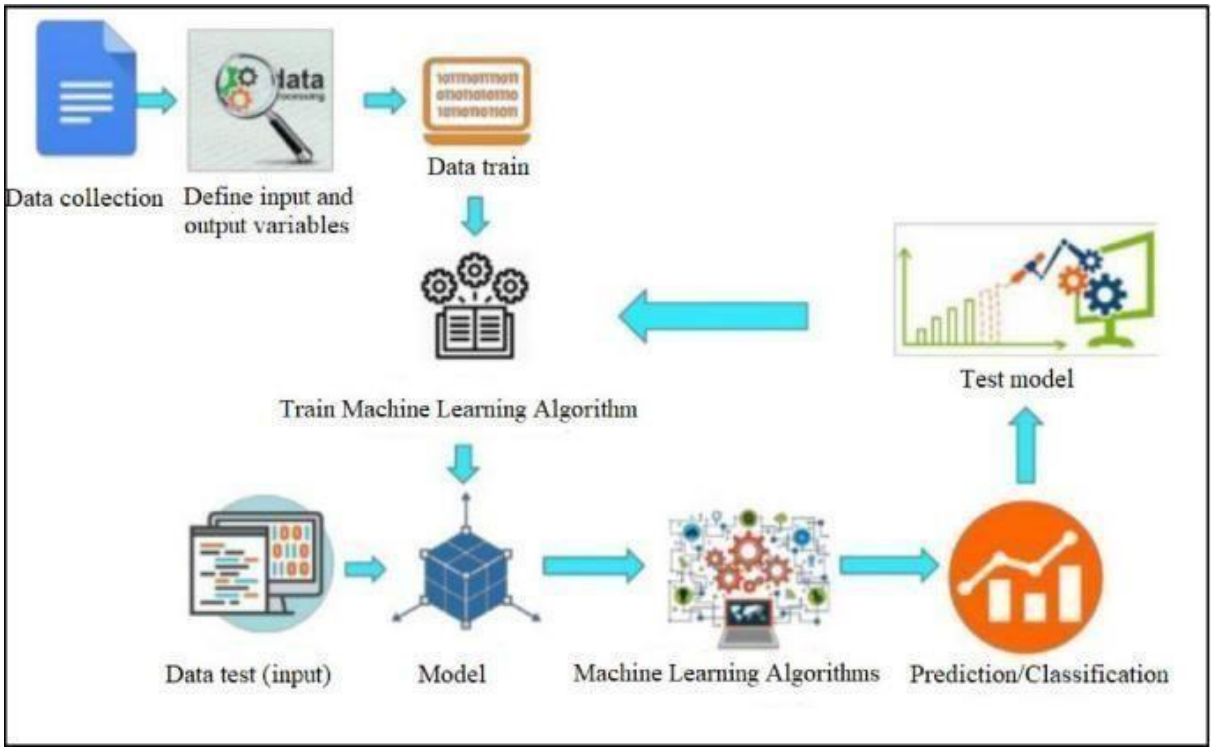
4 Proposed Solution

The placement prediction model considers only academic performances of the students so that the prediction of the student getting placed or not can be done. We cannot consider the placement of students just by their academic performances because some students may be good at aptitude, technical and communication skills due to their low score in their academic that may tend to be their drawback. For predicting the placement of a student needs parameters like cgpa, logical and technical skills Academic performances may be important but the model is design to predict the placements based on the parameters of the student.

5 Model training/validation workflow



6 User I/O workflow



7 Exceptional scenarios

Step	Exception	Mitigation	Module
24th April 2022	1.1	First Draft	Abishek Bhat R
1st May 2022	1.2	Added Workflow chart	Abishek Bhat R

8 Test cases

Test case	Steps to perform test case	Module	Pass/Fail