ROSPL Mini

Project in

CAMPUS PLACEMENT PREDICTION USING ML



Ву

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Project Guide

(Sujata oak)

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Abstract

Placement of students is one of the most important objective of an educational institution. Reputation and yearly admissions of an institution invariably depend on the placements it provides it students with. That is why all the institutions, arduously, strive to strengthen their placement department so as to improve their institution on a whole. Any assistance in this particular area will have a positive impact on an institution's ability to place its students. This will always be helpful to both the students, as well as the institution. In this study, the objective is to analyse previous year's student's data and use it to predict the placement chance of the current students.

This model is proposed with an algorithm to predict the same. Data pertaining to the study were collected form the same institution for which the placement prediction is done, and also suitable data pre-processing methods were applied. This proposed model is also compared with other traditional algorithms such as logistic regression and Random forest with respect to accuracy, precision and recall. From the results obtained it is found that the proposed algorithm performs significantly better in comparison with the other algorithms mentioned.

1. Introduction

Placements are considered to be very important for each and every college. The basic success of the college is measured by the campus placement of the students. Every student takes admission to the colleges by seeing the percentage of placements in the college. Hence, in this regard the approach is about the prediction and analyses for the placement necessity in the colleges that helps to build the colleges as well as students to improve their placements .

In Placement Prediction system predicts the probability of a undergrad students getting placed in a company by applying classification algorithms such as Decision tree ,svm ,logistic regression,and Random forest. The main objective of this model is to predict whether the student he/she gets placed or not in campus recruitment. For this the data consider is the academic history of student like overall percentage, backlogs, credits. The algorithms are applied on the previous years data of the students.

1.1 Fundamentals of OSS

Open source software is <u>software</u> in which the source code is also available along with the software. Moreover, the users have the right to view, modify, and enhance this code. Furthermore, no license is required for the software. The software can be cost-free or chargeable. besides, the user can also share the software without any license violation. Examples are Android, Linux, Apache Server, Ionic, MySQL, etc. People buy this software due to certain reasons. These reasons are as follows:

- The results are of quite high quality.
- Users can easily change the software according to requirements.
- It is more secure.
- Long term use.

1.2 Gpl

Short for **GNU General Public License**, the **GPL** is a general license published by **GNU** project. Any software author may use the GPL to legally control the way their software may be used by others. It is a copyleft license, meaning that any code derived from GPL-licensed code must also be licensed under the GPL.

1.3 Different ways to contribute to OSP

- Discovering relevant projects
- Finding good first issues
- Opening an issue
- Validating an issue or pull request
- Reproducing a reported bug
- Testing a pull request
- Updating issues
- Create open source alternatives to commercial software
- Create your own open source project.

2. Contribution to Open source

2.1 Guidelines/steps involved in contribution

When we say contributing to open-source, it does not necessarilly mean that you need to know how to code. There are different ways in which you can contribute even if you are a non-coder – but having some coding skills will help you (and the projects) out a lot.

Some common contributions can be through:

- Adding a description to a project's documentation to elaborate on a certain point, mostly referred to as a README file (check this guide on how to write a Good README file).
- Giving guidance on a specific project and how to use it.
- Adding sample output to show how the code works.
- Writing in-depth tutorials for the project.
- Adding translation for a project A good place to start with this might be with the translation program.
- Answering questions about a project (like on Stack Overflow or Reddit)
- You can fix typos and arrange the project's work folder correctly.

2.2 Why to contribute in OSP

- It will help sharpen your skills of coding and improvement into writing clean code.
- It helps the community and your peers get to know you. This recognition can bring you a lot of opportunities in your career.
- It helps you learn more about project management, and it could leave you inspired to start your own project.

2.3 Identifying the new/existing open-source projects to contribute-Create

open source alternatives to commercial software, Create your own open source project.

3.Contribution to Open source in machine learning / python

3.1 Problem Definition

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 students.

dataset

The Campus Recruitment Prediction uses Placement_Data_Full_Class.csv Dataset has been used for this purpose, taken from the Kaggle.

Life Cycle of implementing machine learning application.

- Gathering the Data
- Data Preparation
- Data Preprocessing
- Create Model
- Evaluate Model
- Deploy the model

3.2 Objectives

The aim of project is to predict whether the student will be recruited in campus placements or not based on the available factors in the dataset.

3.3 Submission of contribution snapshots

```
MINGW64:/c/Users/Suprit/ROSPL

Suprit@DESKTOP-88NB6VR MINGW64 ~

$ git clone https://github.com/SupritGiri/ROSPL.git
Cloning into 'ROSPL'...
remote: Enumerating objects: 9, done.
remote: Counting objects: 100% (9/9), done.
remote: Compressing objects: 100% (7/7), done.
remote: Total 9 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (9/9), 1.02 MiB | 4.22 MiB/s, done.
```

```
Suprit@DESKTOP-88NB6VR MINGW64 ~
$ cd ROSPL
Suprit@DESKTOP-88NB6VR MINGW64 ~/ROSPL (main)
```

```
Suprit@DESKTOP-88NB6VR MINGW64 ~/ROSPL (main)

$ git remote -v
origin https://github.com/SupritGiri/ROSPL.git (fetch)
origin https://github.com/SupritGiri/ROSPL.git (push)
```

```
Suprit@DESKTOP-88NB6VR MINGW64 ~/ROSPL (main)

$ git remote -v
origin https://github.com/SupritGiri/ROSPL.git (fetch)
origin https://github.com/SupritGiri/ROSPL.git (push)
```

```
Suprit@DESKTOP-88NB6VR MINGW64 ~/ROSPL (main)

$ git branch

* main

Suprit@DESKTOP-88NB6VR MINGW64 ~/ROSPL (main)

$ git checkout -b project

Switched to a new branch 'project'

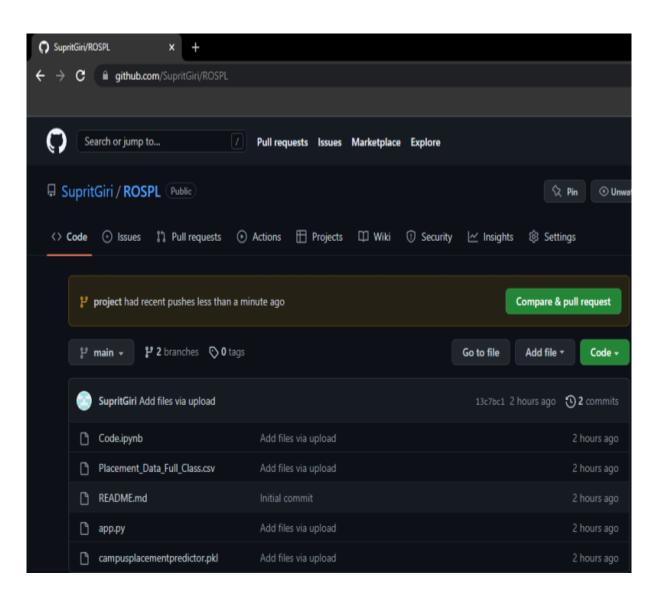
Suprit@DESKTOP-88NB6VR MINGW64 ~/ROSPL (project)

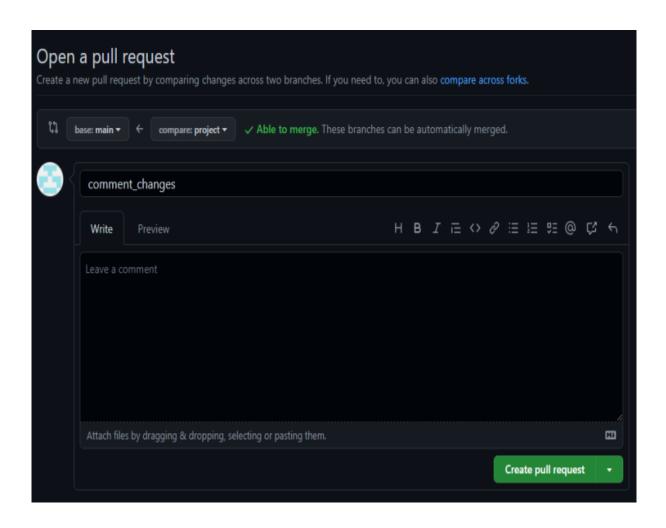
$ git branch
    main

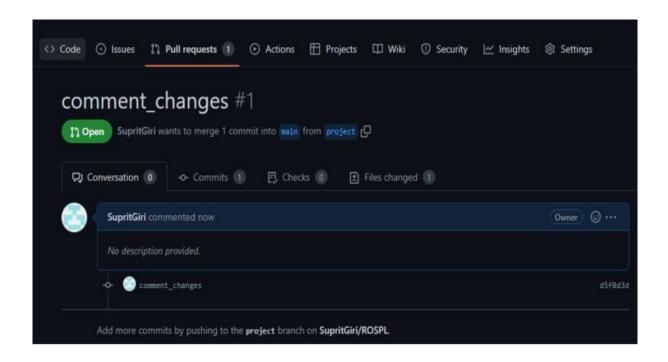
* project
```

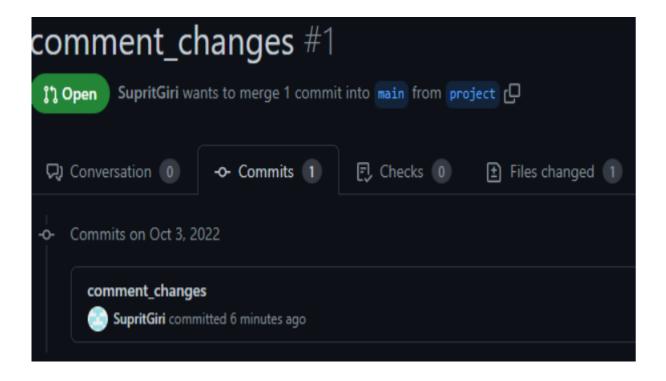
```
PS C:\Users\Suprit\ROSPL> git add -A
PS C:\Users\Suprit\ROSPL> git commit -m "comment_changes"
[project d5f0d3d] comment_changes
1 file changed, 2 insertions(+)
```

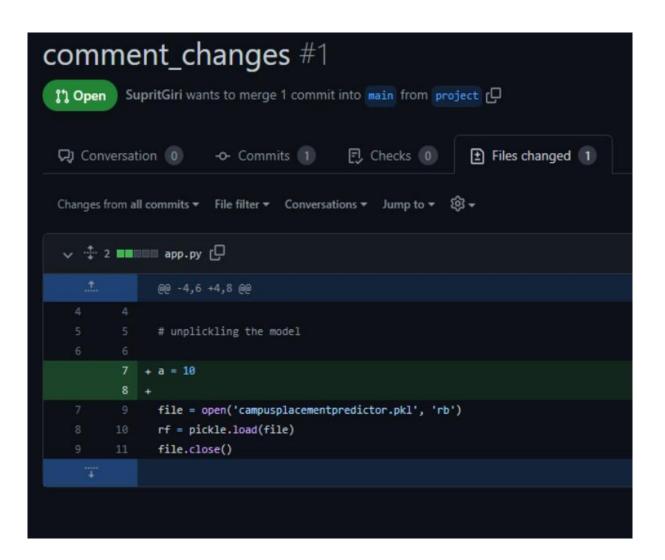
```
PS C:\Users\Suprit\ROSPL> git push origin project
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 299 bytes | 299.00 KiB/s, done.
Total 3 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/SupritGiri/ROSPL.git
13c7bc1..d5f0d3d project -> project
```

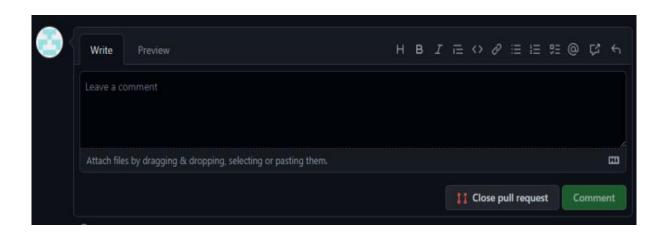


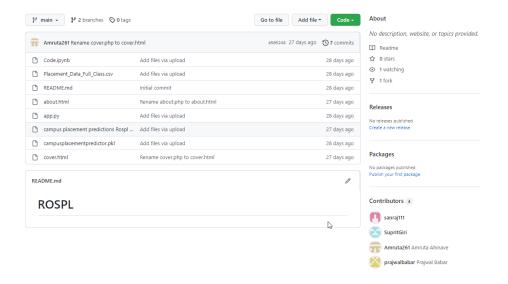


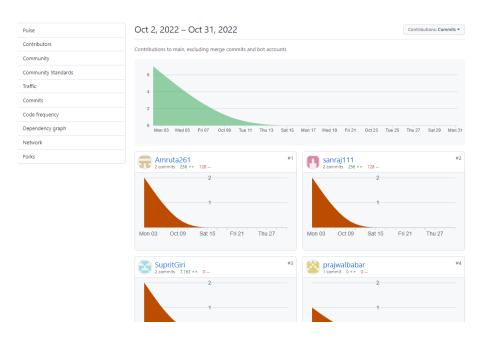












3.4 Source code

```
In [1]:
         import pandas as pd
         import numpy as np
         import seaborn as sns
         import matplotlib.pyplot as plt
         import jinja2
In [2]:
         df = pd.read_csv("Placement_Data_Full_Class.csv")
         df.head()
           sl_no gender ssc_p ssc_b hsc_p hsc_b
                                                     hsc_s degree_p
                                                                       degree_t workex etest_p specialisation mba_p
                                                                                                                     status
                                                                                                                            salary
                    M 67.00 Others 91.00 Others Commerce
                                                              58.00
                                                                       Sci&Tech
                                                                                   No
                                                                                          55.0
                                                                                                  Mkt&HR
                                                                                                           58.80
                                                                                                                     Placed 270000.0
                    M 79.33 Central 78.33 Others
                                                                                                  Mkt&Fin 66.28
                                                   Science
                                                              77.48
                                                                       Sci&Tech
                                                                                          86.5
                                                                                                                     Placed 200000.0
        2
                    M 65.00 Central 68.00 Central
                                                      Arts
                                                              64.00 Comm&Mgmt
                                                                                   No
                                                                                         75.0
                                                                                                  Mkt&Fin
                                                                                                           57.80
                                                                                                                     Placed 250000.0
                    M 56.00 Central 52.00 Central
                                                   Science
                                                              52.00
                                                                       Sci&Tech
                                                                                   No
                                                                                          66.0
                                                                                                  Mkt&HR
                                                                                                           59.43 Not Placed
                                                                                                                              NaN
                    M 85.80 Central 73.60 Central Commerce
                                                              73.30 Comm&Mgmt
                                                                                         96.8
                                                                                                  Mkt&Fin 55.50
                                                                                                                     Placed 425000.0
                                                                                   No
In [3]:
         df.info()
        <class 'pandas.core.frame.DataFrame'>
        RangeIndex: 215 entries, 0 to 214
        Data columns (total 15 columns):
         # Column
                            Non-Null Count Dtype
                            .....
         0 sl no
                             215 non-null int64
          1 gandan
                             215 non-null
                                            object
```

Handling Null Values

```
In [6]:
         def plotdistplot(col):
             plt.figure(figsize = (15, 7))
             sns.distplot(df["salary"], kde = True, hist = False, label = "Actual Salary", color = "red")
             sns.distplot(df[col], kde = True, hist = False, label = col, color = "black")
In [7]:
         df["salary"].mode()[0]
        300000.0
Out[7]:
In [8]:
         df["salary_mean"] = df["salary"].fillna(df["salary"].mean())
         df["salary_median"] = df["salary"].fillna(df["salary"].median())
         df["salary_mode"] = df["salary"].fillna(df["salary"].mode()[0])
         df.head(3)
           sl_no gender ssc_p ssc_b hsc_p hsc_b
                                                                        degree_t workex etest_p specialisation mba_p status salary_mean salary_median salary_
                                                     hsc_s degree_p
                     M 67.00 Others 91.00 Others Commerce
                                                              58.00
                                                                        Sci&Tech
                                                                                    No
                                                                                          55.0
                                                                                                    Mkt&HR 58.80 Placed 270000.0
                                                                                                                                    270000.0
                                                                                                                                                             27(
```

SupritGiri Add files via upload		13c7bc1 5 hours ago 32 commits
Code.ipynb	Add files via upload	5 hours ago
Placement_Data_Full_Class.csv	Add files via upload	5 hours ago
README.md	Initial commit	5 hours ago
🗋 арр.ру	Add files via upload	5 hours ago
ampusplacementpredictor.pkl	Add files via upload	5 hours ago

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SupritGiri Add files via upload

१३ 1 contributor

```
62 lines (39 sloc) | 1.62 KB
  1 \quad \mbox{from flask import Flask, request, render\_template}
  2 import pickle
  3
  5 # unplickling the model
  7 file = open('campusplacementpredictor.pkl', 'rb')
  8 rf = pickle.load(file)
  9 file.close()
 10
 11
 12 app = Flask(__name__)
 13
 14
 15 @app.route('/', methods=['GET', 'POST'])
 16 def page():
 17
         if request.method == 'POST':
 18
```

```
# predicting the probability
        predictedprob = rf.predict_proba(inputfeatures)
        print(predictedclass, predictedprob[0][0])
        if predictedclass[0] == 1:
            proba = predictedprob[0][1]
        else:
            proba = predictedprob[0][0]
       print(predictedclass, proba*100)
        placemap = {1: 'Will be Placed', 0: 'Better Luck Next Time :('}
        predictedclasssend = placemap[predictedclass[0]]
       if predictedclass[0] == 1:
           return render_template('show.html', predictedclasssend=predictedclasssend, predictedprob=round(proba*100, 2), placed=True)
       else:
            return render_template('show.html', predictedclasssend=predictedclasssend)
    return render_template('index.html')
if __name__ == '__main__':
    app.run(debug=True)
```

	model_name	best_score	best_estimator
0	RandomForest	0.867059	(DecisionTreeClassifier(ccp_alpha=0.0195, max
1	logistic	0.872269	LogisticRegression(C=0.5, max_iter=194, multi
2	D-tree	0.791429	DecisionTreeClassifier(ccp_alpha=0.02, max_fea
3	SVM	0.843529	SVC(C=0.75, kernel='poly', max_iter=194, tol=0

Campus Recruitment Prediction

Campus recruitment is a strategy for sourcing, engaging and hiring young talent for internship and entry-level positions. College recruiting is typically a tactic for medium- to large-sized companies with high-volume recruiting needs, but can range from small efforts (like working with university career centers to source potential candidates) to large-scale operations (like visiting a wide array of colleges and attending recruiting events throughout the spring and fall semester). Campus recruitment often involves working with university career services centers and attending career fairs to meet inperson with college students and recent graduates. Some industries participate in campus recruiting more than others; finance, technology, business consulting, manufacturing and engineering are a few of the most popular.



The dataset is collected from Kaggle website. Here is the link for the dataset. The goal of this project is to analyze the factors that can effect the Campus Recruitment, and also creating a model which will predict the chances of getting placed depending on various factors.

Campus Placement Predictor

Select Gender	
Male	٧
Select Specialisation	
Marketing and Human Resources	٧
Select the Techinal Degree	
Commerce and Management	٧
Have Work Experience ?	
No	٧
Enter the SSC Percentage	
Enter the High School Percentage	
Enter the Degree Percentage	
Enter the MBA Percentage	
Predict	

4.Conclusion and Future Scope

4.1 Conclusion

The placement department plays an important role in student placements, which raises the institute's worth. The current system follows the standard procedure of a firm visiting institutions and doing campus selection. Following the interview procedure, we shall learn the names of the students who have been chosen. However, we require 100% placements in order to improve the college's reputation. As a result, we require a system that can anticipate student placements in advance. As a result, "Student Placement Prediction" application has been created. The system assists colleges in predicting student placement status and boosting placement opportunities.

4.2 Future Scope

We can employ a larger number of algorithms and apply them to training datasets, allowing us to find the best algorithm. For placement prediction, a greater number of parameters and training datasets can be used.

References

- https://github.com/SupritGiri/ROSPL
- https://opensource.guide/how-to-contribute/
- https://www.freecodecamp.org/news/how-to-contribute-to-opensource-projects-beginners-guide/
- https://www.jetir.org/papers/JETIR2107359.pdf