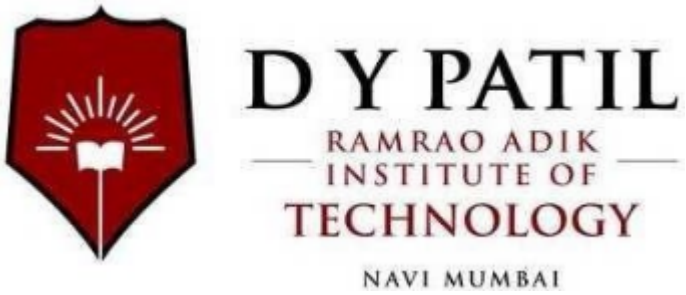
ROSPL

Mini

Project in

CAMPUS PLACEMENT PREDICTION USING ML



By

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Sanraj bhosale 19IT1067

Project Guide

(Sujata oak)

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 software 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 necesarilly 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
```

README.md ● app.py ×

app.py > ...

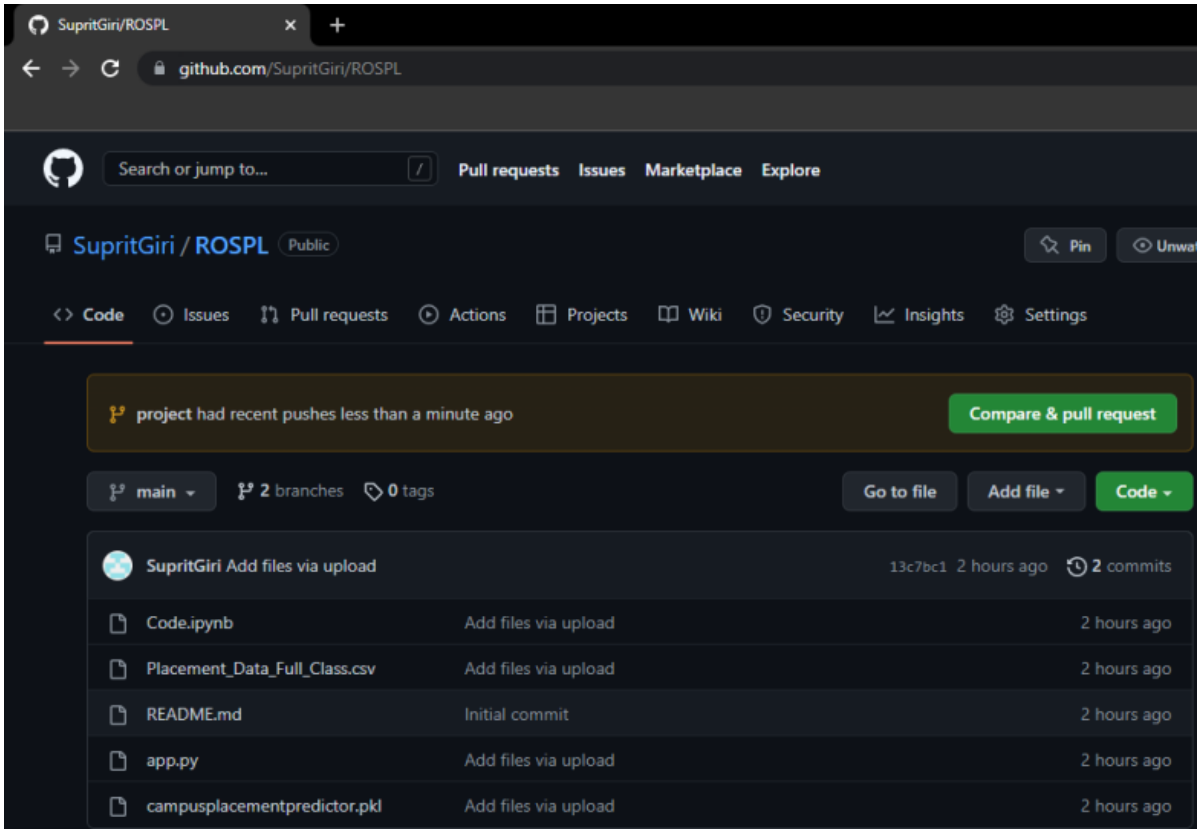
You, 8 minutes ago | 2 authors (SupritGiri and others)

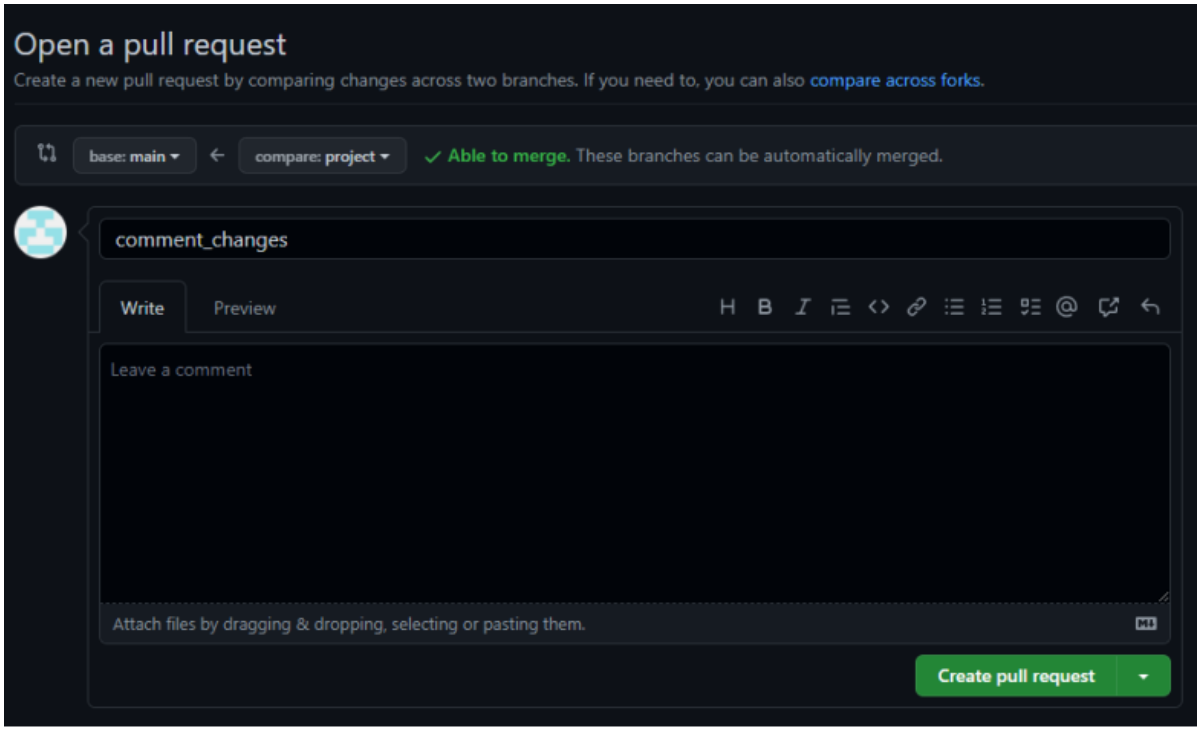
```python
from flask import Flask, request, render_template
import pickle


# unplickling the model

a = 10
```

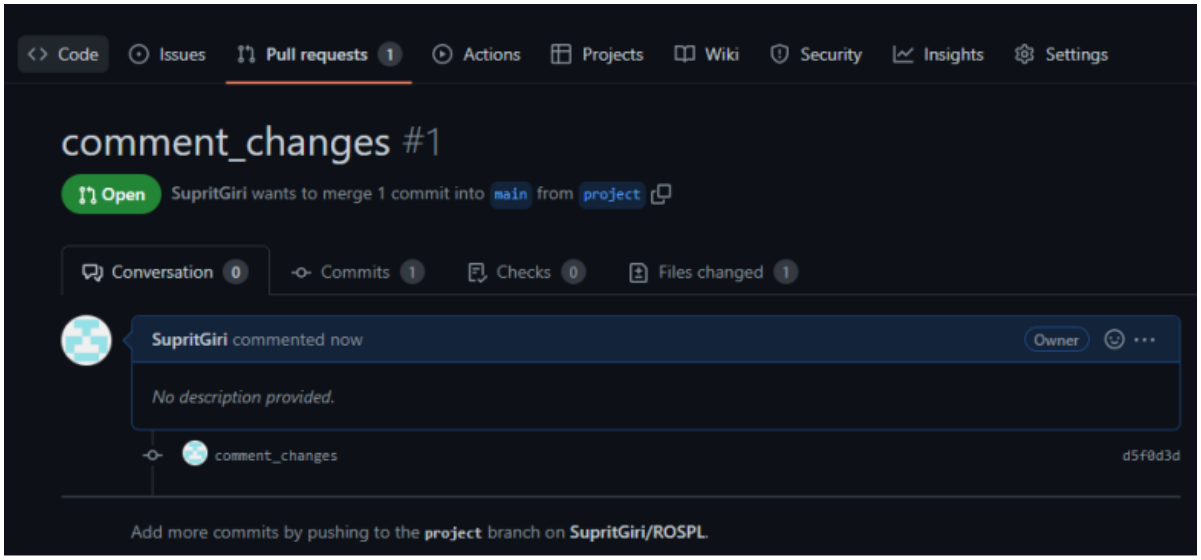
You, 8 minutes ago • comment_changes …

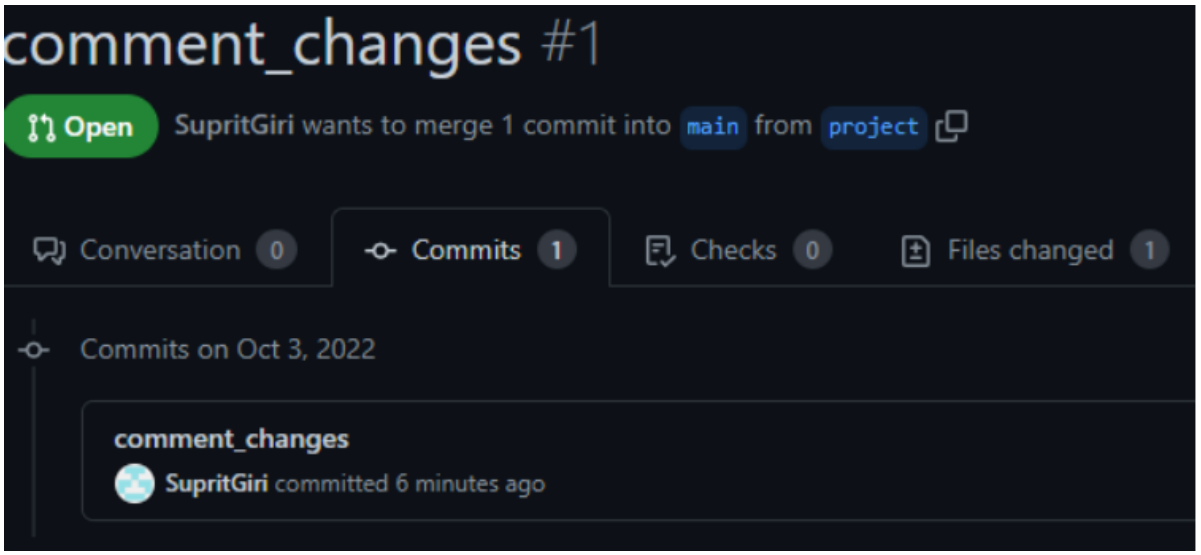
```
PS C:\Users\Suprit\ROSPL> git add -A
PS C:\Users\Suprit\ROSPL> git commit -m "comment_changes"
[project d5f0d3d] comment_changes
 1 file changed, 2 insertions(+)
```

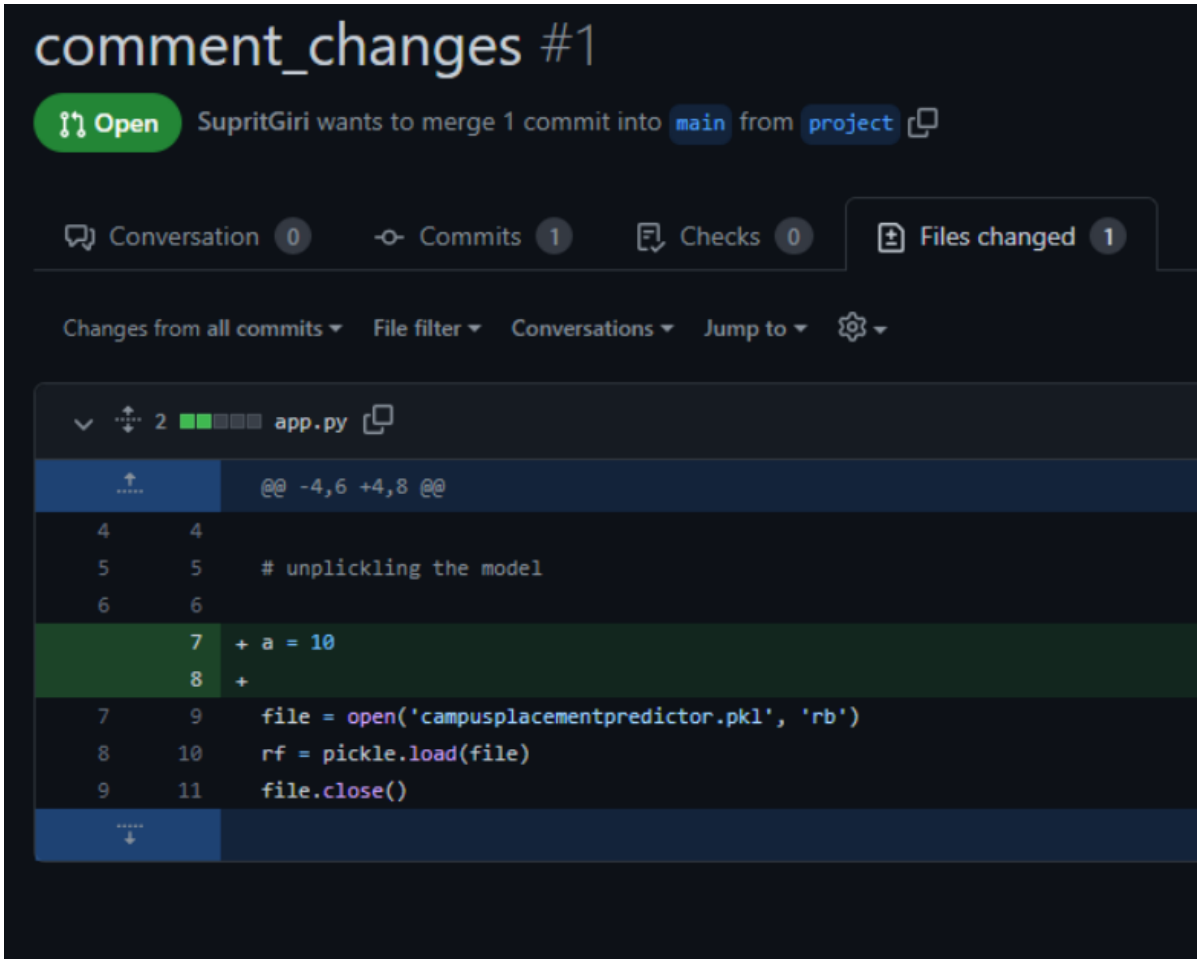
```
PS C:\Users\Suprit\ROSPL> git push origin project
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 299 bytes | 299.00 KiB/s, done.
Total 3 (delta 2), reused 0 (delta 0), pack-reused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

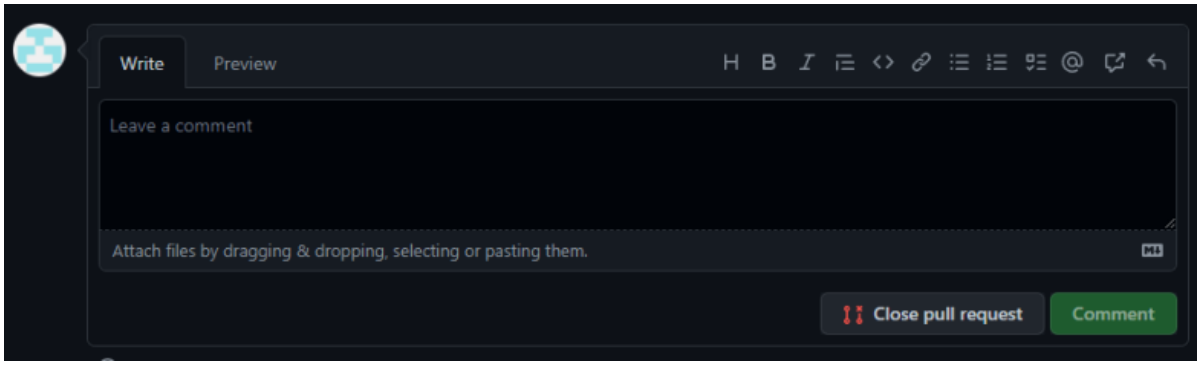

SupritGiri/ROSPL
github.com/SupritGiri/ROSPL
Search or jump to...
Pull requests
Issues
Marketplace
Explore
SupritGiri / ROSPL
Public
Pin
Code
Issues
Pull requests
Actions
Projects
Wiki
Security
Insights
Settings
project had recent pushes less than a minute ago
Compare & pull request
main
2 branches
0 tags
Go to file
Add file
Code
SupritGiri Add files via upload
13c7bc1 2 hours ago
2 commits
Code.ipynb
Add files via upload
2 hours ago
Placement_Data_Full_Class.csv
Add files via upload
2 hours ago
README.md
Initial commit
2 hours ago
app.py
Add files via upload
2 hours ago
campusplacementpredictor.pkl
Add files via upload
2 hours ago


Open a pull request
Create a new pull request by comparing changes across two branches. If you need to, you can also compare across forks.
base: main
compare: project
Able to merge. These branches can be automatically merged.
comment_changes
Write
Preview
Leave a comment
Attach files by dragging & dropping, selecting or pasting them.
Create pull request


Code
Issues
Pull requests 1
Actions
Projects
Wiki
Security
Insights
Settings
comment_changes #1
Open
SupritGiri wants to merge 1 commit into main from project
Conversation 0
Commits 1
Checks 0
Files changed 1
SupritGiri commented now
Owner
No description provided.
comment_changes
d5f0d3d
Add more commits by pushing to the project branch on SupritGiri/ROSPL.


comment_changes #1
Open
SupritGiri wants to merge 1 commit into main from project
Conversation 0
Commits 1
Checks 0
Files changed 1
Commits on Oct 3, 2022
comment_changes
SupritGiri committed 6 minutes ago


comment_changes #1
Open
SupritGiri wants to merge 1 commit into main from project
Conversation 0
Commits 1
Checks 0
Files changed 1
Changes from all commits
File filter
Conversations
Jump to
2 app.py
@@ -4,6 +4,8 @@
# unplickling the model
+ a = 10
+
file = open('campusplacementpredictor.pkl', 'rb')
rf = pickle.load(file)
file.close()


Write
Preview
Leave a comment
Attach files by dragging & dropping, selecting or pasting them.
Close pull request
Comment

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()
```

Out[2]:

	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
0	1	M	67.00	Others	91.00	Others	Commerce	58.00	Sci&Tech	No	55.0	Mkt&HR	58.80	Placed	270000.0
1	2	M	79.33	Central	78.33	Others	Science	77.48	Sci&Tech	Yes	86.5	Mkt&Fin	66.28	Placed	200000.0
2	3	M	65.00	Central	68.00	Central	Arts	64.00	Comm&Mgmt	No	75.0	Mkt&Fin	57.80	Placed	250000.0
3	4	M	56.00	Central	52.00	Central	Science	52.00	Sci&Tech	No	66.0	Mkt&HR	59.43	Not Placed	NaN
4	5	M	85.80	Central	73.60	Central	Commerce	73.30	Comm&Mgmt	No	96.8	Mkt&Fin	55.50	Placed	425000.0

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   gender          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]
```

Out[7]:
```
300000.0
```

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)
```

Out[8]:

	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	salary_mean	salary_median	salary_
0	1	M	67.00	Others	91.00	Others	Commerce	58.00	Sci&Tech	No	55.0	Mkt&HR	58.80	Placed	270000.0	270000.0	270000.0	27(

SupritGiri Add files via upload 13c7bc1 5 hours ago 2 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
app.py	Add files via upload	5 hours ago
campusplacementpredictor.pkl	Add files via upload	5 hours ago

main ROSPL / app.py / Jump to

SupritGiri Add files via upload

1 contributor

62 lines (39 sloc) 1.62 KB

```python
from flask import Flask, request, render_template
import pickle


# unplickling the model

file = open('campusplacementpredictor.pkl', 'rb')
rf = pickle.load(file)
file.close()


app = Flask(__name__)


@app.route('/', methods=['GET', 'POST'])
def page():

    if request.method == 'POST':
```

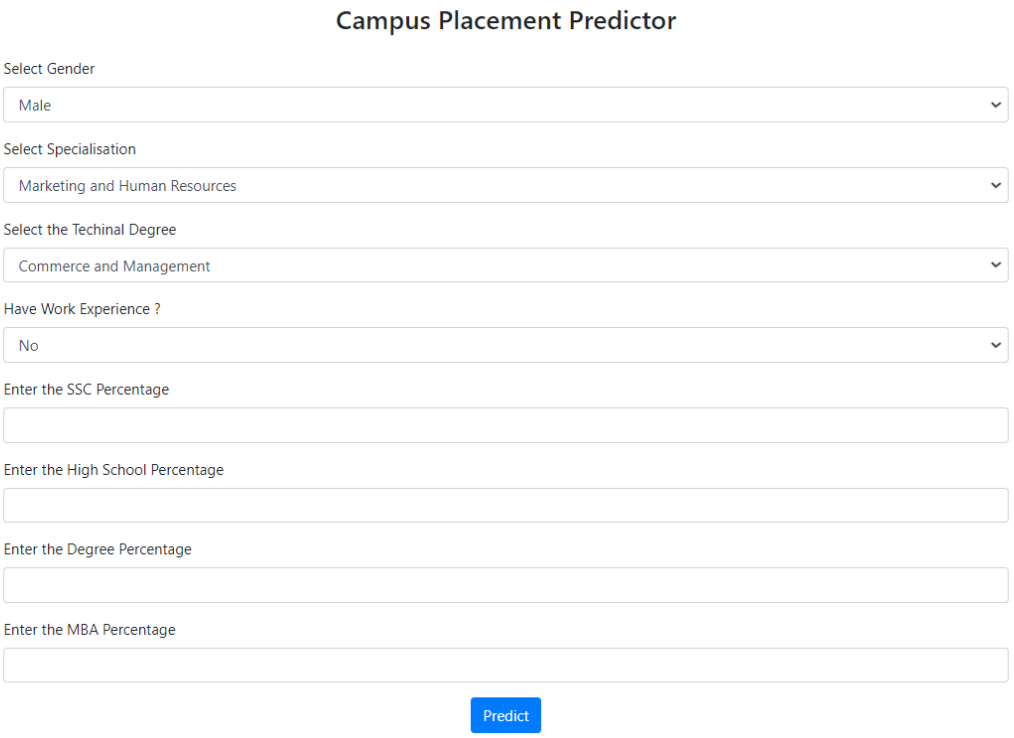
```python
        # predicting the probability

        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 in-person 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.



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-open-source-projects-beginners-guide/**
- **https://www.jetir.org/papers/JETIR2107359.pdf**