



GOVERNMENT OF TAMILNADU

Naan Muthalvan - Project-Based Experiential Learning

IDENTIFYING PATTERNS AND TRENDS IN CAMPUS PLACEMENT DATA USING MACHINE LEARNING

Submitted by

K.GAYATHRI- (20626ER042)

A.VANITHA- (20626ER068)

M.SABITHA- (20626ER061)

M.SNEKA- (20626ER063)

S.SARANYA-(20626ER062)

Under the guidance of

Mrs.K.P.KAVITHA, MCA.,M.Phil.,(Ph.D)

Department of Computer Science



GOVERNMENT ARTS COLLEGE FOR WOMEN , NILAKOTTAI

B(Affiliated To Mother Teresa Women's University, Kodaikanal)

Reaccredited with "C" Grade by NAAC

NILAKOTTAI - 624208

APRIL - 2023

GOVERNMENT ARTS COLLEGE FOR WOMEN, NILAKOTTAI
(Affiliated to Mother Teresa Womens University, Kodaikanal)
Reaccredited with 'C' Grade by NAAC
Nilakottai - 624208



DEPARTMENT OF COMPUTER SCIENCE

BONAFIDE CERTIFICATE

This is to certify that this is a bonafide record of the project entitled **IDENTIFYING PATTERNS AND TRENDS IN CAMPUS PLACEMENT DATA USING MACHINE LEARNING** done By **MS.K.GAYATHRI- (20626ER042), MS. A.VANITHA – (20626ER068), MS. M.SABITHA - (20626ER061), MS. M.SNEKA - (20626ER063) , MS.S.SARANYA –(20626ER062)** This is submitted in partial fulfillment for the award of the degree of **Bachelor of Science in Computer Science in GOVERNMENT ARTS COLLEGE FOR WOMEN, NILAKOTTAI** during the period of December 2022 to April 2023.

Project Mentor(s)

Head of the Department

Submitted for viva-voce Examination held on _____

INTERNAL EXAMINER

EXTERNAL EXAMINER

CONTENT

SNO	TITLE	PAGE NO
1	INTRODUCTION	
	1.1 Overview	1
	1.2 Purpose	2
2	PROBLEM DEFINITION & DESIGN THINKING	3
	2.1 Empathy Map	3
	2.2 Ideation & Brainstorming Map	4
3	RESULT	5
4	ADVANTAGES & DISADVANTAGES	9
5	APPLICATIONS	11
6	CONCLUSION	12
7	FUTURE SCOPE	13
8	APPENDIX	14
	8.1 Source Code	14

1.INDRODUCTION :

Manual Training and Placement which is done at various college is by human intervention due to which there is a maximum chance of error The major problem is searching and updating of the student data. Placement officers have to manage the student's profile and their documents. Placement Officer has to collect the information of various companies who comes for recruitment. They have to arrange profiles of students according to various streams and notify them each

time according to company requirements. Placement officers submit the information of students and if any changes or updates are required in the profile of any student, it has to be done manually. This process is so difficult and tedious when the number of users increases. This is tedious and timeconsuming. Chances of missing data are also possible. It is also difficult for collecting, managing, and updating student data as the number of students increases[3]. 'Placement Management System' like many other placement management web sites, provides information on placement providers and the placements and also keeps up to date information of all students. It is a platform where students can view and assess their opportunities.

1.1 Overview

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

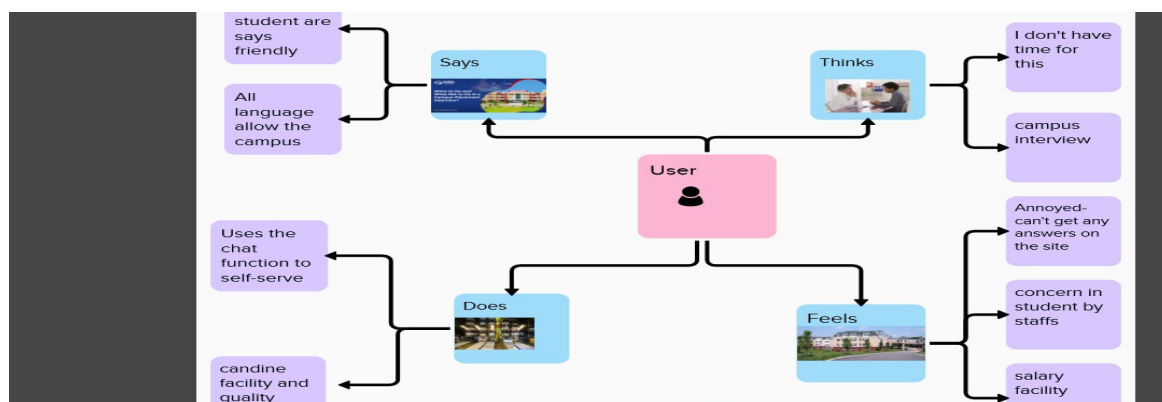
recruitment often involves working with university career services centers and attending career fairs to meet in-person with college students and recent graduates. Our solution revolves around the placement season of a Business School in India. Where it has various factors on candidates getting hired such as work experience, exam percentage etc., Finally it contains the status of recruitment and remuneration details.

1.2 Purpose

Placement Management System manages student information in the college with regard to placement. It improves existing system. It has the facility of maintaining the details of the student, thereby reducing the manual work. It will save time and energy which are spending in making reports and collecting data. Placement Management System can be accessed throughout the college with proper login provided. III. SCOPE The project has a wide scope.

2. Problem definition & Design Thinking

2.1 Empathy map



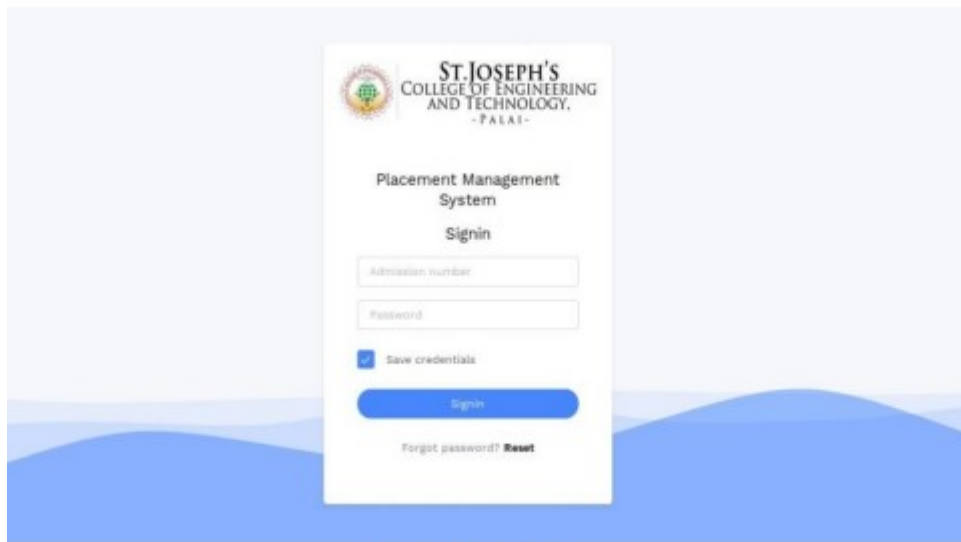


Fig 2:- Login Page



Fig 3:- Student Login

The admin dashboard is shown in the Figure 4. The admin can do all the necessary work in the options provided to him related to students.



Fig 4:- Admin Login



ents and training details.

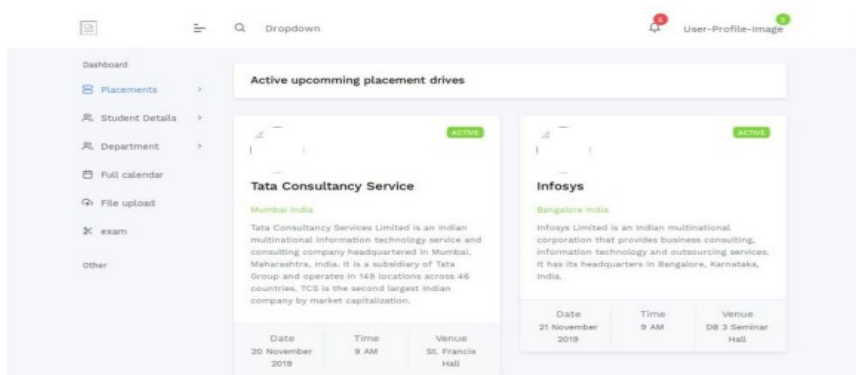


Fig 7:- Tutor Dashboard

3.ADVANTAGE & DISADVANTAGES

1. ADVANTAGES

- These days, everything is fast-paced, and people want to save time and effort throughout the campus recruiting procedure. Before the advent of the digital age, companies would have had to devote a whole day hiring candidates.
- They had to engage in various methodologies such as advertisement, and let's not forget the interview process and time taken to hire tag

2. DISADVANTAGES

- As there are no geographical barriers for attaining distance education, travelling cost can be considerably reduced. Also, distance education programs are comparatively cheaper than regular courses.
- Lack of personnel interaction with faculties often affects the learning curve for some students. Here study process, is totally dependent on the grasping power of the student.
- Proper classroom situation often improves the learning ability of a student. Inappropriate environment can result in students losing discipline in study. They may also miss deadlines for submitting projects or assignments.

5.APPLICATION

Campus Placement refers to the activities held at colleges/universities to hire young talents and provide them with job opportunities. In this process, companies visit colleges and hire candidates who clear all the rounds (Aptitude, Coding, Technical Interview, and HR Interview) with a good score.

Campus is not a health insurance program but makes payment for health benefits provided through certain affiliations with the Uniformed Services. Information on the patient's sponsor should be provided in those items captioned in "Insured".

Campus Placement refers to the activities held at colleges/universities to hire young talents and provide them with job opportunities. In this process, companies visit colleges and hire candidates who clear all the rounds (Aptitude, Coding, Technical Interview, and HR Interview) with a good score.

6.CONCLUSION

Maximum work goes manually in the present placement system which makes it take time to avail changes. This includes main problems like searching for the data of students and sorting them along with it. Also, updating student data is a cumbersome job and does not have a method to notify the student in time which makes the management of the placements very difficult.

In the proposed system, all of these problems become automated. The registration of the student for an upcoming placement, the addition of a new user, notifying students, sharing information, the privacy of the student, etc is all met. The admin validates the information and gives the student list based on the criteria required which otherwise would have been very difficult to manage.

7.FUTURE SCOPE

The project has a wide scope. Our project mainly helps in improving productivity and makes use of utilization of resources. There is no duplication of work as this was not the case when done manually. Thus it reduces labor and increases morale. The system intends userfriendly operations which may resolve ambiguity.

The project is a total management and informative system, which provides the up- to-date information of all the students in the college. Our system also help the college to overcome the difficulty in keeping records of hundreds of students and searching for a student eligible for recruitment criteria from the whole thing.

It helps in effective and timely utilization of resources. The project facilitates user friendly, reliable and fast management system. The placement officer itself can carry out operations in a smooth and effective manner. They need not concentrate on record keeping. The college can maintain computerized records thus reducing paper work, time and money.

8.APPENDIX

A.Source code

```
import numpy as np
import pandas as pd
import os
Import seaborn as sns
Import matplotlib.pyplot as plt
from sklearn import svm
from sklearn.metrics import accuracy_score
from sklearn.neighbors import KNeighboursClassifier
from sklearn import metrics
from sklearn.model_selection import cross_val_score
```

```

from sklearn import preprocessing
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import StandardScaler
import joblib
from sklearn.metrics import accuracy_score
df= pd.read_csv(r"/content/collegePlace.csv")
df.head()
df.info()
df.isnull().sum()
def transformationplot(feature):
plt.figure(figsize=(12,5))
plt.subplot(1,2,1)
sns.distplot(feature)
transformationplot(np.log(df['Age']))
df=df.replace(['Male'],[0])
df=df.replace(['Female'],[1])
df=df.replace(['Computer
Science','InformationTecnology','Electronics and
Communication','Mecanical','Electronical','Civil'],[0,1,2,3,4,5])
df=df.drop(['Hostel'],axis=1)
plt.figure(figsize=(12,5))
plt.subplot(121)
sns.distplot (df['CGPA'],color='r')
plt.figure(figsize=(12,5))
plt.subplot(121)
snsdistplot(df['PlacedOrNot'],color='r')
plt.figure(figsize=(18,4))
plt.subplot(1,4,1)
sns.countplot(data['Gender'])
plt.subplot(1,4,2)
sns.countplot(data['Education'])
plt.show()
plt.figure.(figsize=(20,5))
plt.subplot(131)
sns.countplot(df["PlacedOrNot"],hue=df['CGPA'])
sns.swarmplot(df['PlacedOrNot'],df['CGPA'], hue =df['Stream'])
sns.swarmplot(df['PlacedOrNot'],df['CGPA'],hue=df['Stream'])

```

```

sc=StandardScaler()
x_bal=sc.fit_transform(x_bal)
x_bal=pd.DataFrame(x_bal,columns=names)
X=standardized_data
Y=df['PlacedOrNot']
X_train,X_test,Y_train,Y_test=train_test_split(X,Y,test_size=0.2,
stratify=Y,random_state=2)
classifier=svm.SVC(kernel='linear')
classifier.fit(X_train,Y_train)
SVC(kernel='linear')
X_train_prediction=classifier.predict(X_train)
training_data_accuracy=accuracy_score(X_train_prediction,Y_train)
print('Accuracy score of the training data
:',training_data_accuracy)
Accuracy score of the training data :0.7685497470489039

```

```

best_K={"Regular":0}
best_score={"Regular":0}
for k in range(3,50,2):
knn_temp=KNeighborsClassifier(n_neighbor=k)
knn_temp.fit(X_train,Y_train)
knn_temp_pred=knn_temp.predict(X_test)
score=metrics.accuracy_score(Y_test,knn_temp_pred)*100
if score>=best_score["Regular"]and score <100
best_score["Regular"]=score
best_k["Regular"]=k

```

```

print("-----Results----\nk: {}".format(best_k,best_score))
knn=KNeighborsClassifier(n_neighbors=best_k["Regular"])
knn.fit(X_train,Y_train)
knn_pred=knn.predict(X_test)
tested=accuracy_score(knn_pred,Y_test)

```

```

import tensorflow as tf
from tensorflow import keras
from keras.models import sequential

```

```

from tensorflow.keras import layers

classifier=sequential()
classifier.add(keras.layers.Dense(6,activation='relu',input_din=6))
classifier.add(keras.layers.Dropout(0.50))
classifier.add(keras.layers.Dense(6,activation='relu'))
classifier.add(keras.layers.Dropout(0.50))
classifier.add(keras.layers.Dense(1,activation='sigmoid'))

loss_1=tf.keras.losses.Binarycrossentropy()
classifier.compile(optimizer='Adam',loss=loss_1,metrics=['accuracy'])

classifier.fit(X_train,Y_train,batch_size=20,epochs=100)

import pickle
pickle.dump(knn,open("placement.pkl",'wb'))
model=pickle.load(open('placement.pkl','rb'))

```

```

<section id="hero"class="d-flex flex-column justify-content-center">
<div class="container">
<div class="row justify-content-center">
<div class="col-xl-8">
<h1>Identifying Patterns and Trends in Campus Placement Data
using Machine Learning</h1>
</div>
</div>
</div>
</section><!--End Hero-->

```

```

<section id="about"class="about">
<div class="container">
<div class="section-title">
<h2>Fill the details</h2>

```

```

</div>
<div class="row content">
<div class="first">
<form action="{ {url_for('y_predict')}} "method="post">
<input type="number"
id="sen2"name="sen2"Placeholder="Gender M(0),F(0)">
<input type="number"
id="sen3"name="sen3"Placeholder="Stream
CS(0),IT(1),ECE(2),Mech(3),EEE(4)Civil(5)">
<input type="number"
id="sen4"name="sen4"Placeholder="Internships">
<input type="number"
id="sen5"name="sen5"Placeholder="CGPA">
<input type="number"
id="sen6"name="sen6"Placeholder="Number of backlogs">
<input type="submit"values="submit">
</form>
</div>
</div>
</div>
</section><!--End About UsSection-->
<section id="hero"class="d-flex flex-column justify-content-
center">
<div class="container">
<div class="row justify-content-center">
<div class="col-xl-8">
<h1>The prediction is : { {y}} </h1>
<h3>0 represents Not-Placed </h3>
<h3>1 represents Placed </h2>
</div>
</div>
</div>
</section><!-- End Hero -->
from flask import Flask,render_template,request
app=Flask(__name__)
import pickle
import joblib

```

```
model=pickle.load(open("placement123.pkl",'rb'))
ct=joblib.load('placement')
@app.route('/')
def hello():
return render_template("index.html")
@app.route('/guest',methods=["POST"])
def guest():
sen1=request.form["sen1"]
sen2=request.form["sen2"]
sen3=request.form["sen3"]
sen4=request.form["sen4"]
sen5=request.form["sen5"]
sen6=request.form["sen6"]

@app.route('/y_predict',methods=["POST"])
def y_predict():
x_test = [[(yo)for yo in request.form.values()]]
prediction =model.predict(x_test)
prediction = prediction[0]
return render_template("secondpage.html",y=prediction)
app.run(debug=True)
serving Flask app "app"(lazy loading)
Environment: production
```

Debug mode :on
restarting with watchdog(windowsapi)
Debugger is active!
Debugger PIN:146-359-021
Running on http://127.0.0.1:5000/(Press CTRL+C to quit)

