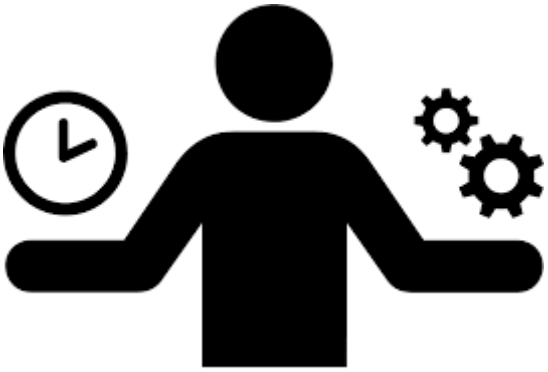
COMPUTER SCIENCE

PROJECT FILE



PRODUCTIVITY

ENHANCER

NAME: Gunagya Kochar

Class: XII

SESSION: 2024-25

Roll Number:

INDEX

AMITY INTERNATIONAL SCHOOL, PUSHP VIHAR

CERTIFICATE

This is to certify that Gunagya Kochar of class XII has completed the project "Productivity Enhancer" during session 2024-25 under my guidance and supervision.

_____

Ms. Yashika Budhraja Malhotra

PGT Computer Science

ACKNOWLEDGEMENT

I would like to take this opportunity to express my profound sense of gratitude and respect to all those who helped me throughout the duration of this project. Amity International School, Pushp Vihar in particular has been the source of inspiration for me. I acknowledge the effort of those who have contributed significantly to my project.

I express my sincere gratitude and thankfulness towards Ms. Yashika Budhraja Malhotra, Head, Department of Computer Science, Amity International School, Pushp Vihar for her valuable time and guidance throughout this course especially her skilful Teaching, precious suggestions and encouragements.

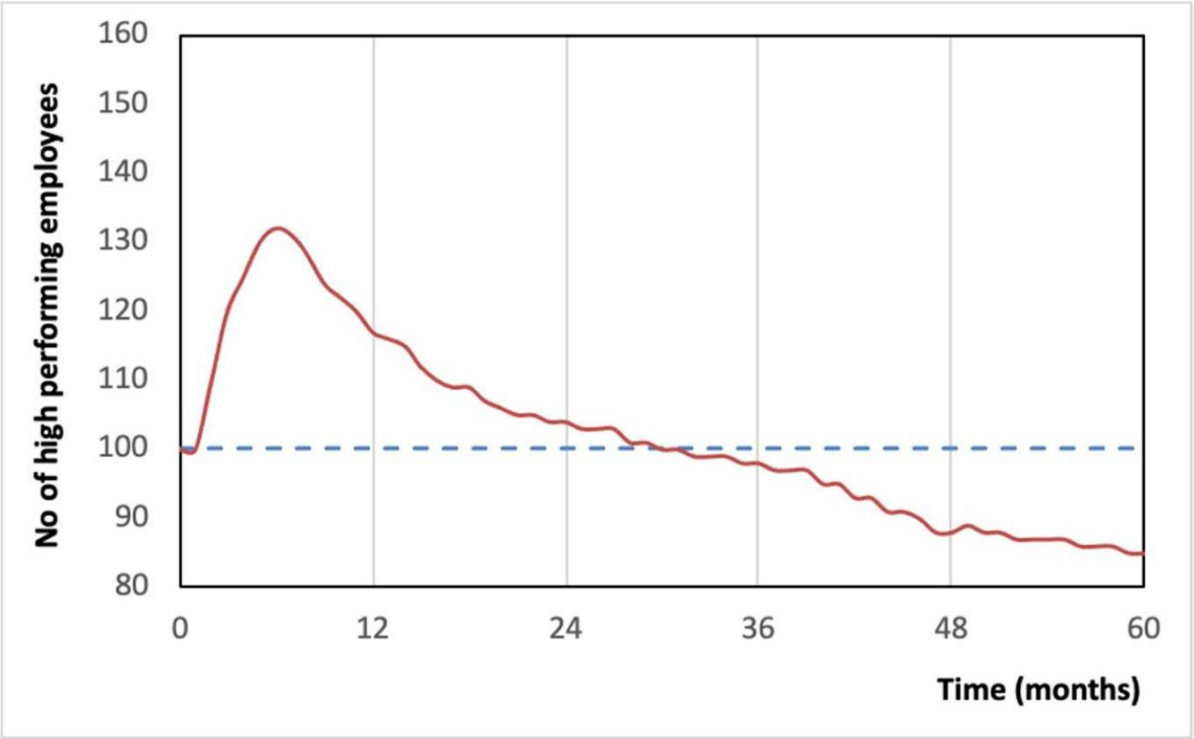
Last but not the least I would like to thank my group partners for their extremely helpful nature. I regret any inadvertent omissions.

DECLARATION

I hereby declare that this project entitled **"PRODUCTIVITY ENHANCER"** is done by me at **"Amity International School, Pushp Vihar"** for the partial fulfillment of the requirement for the award of the Class XII Board Examination 2024-25 and no part of the project has been submitted by me for any other purpose

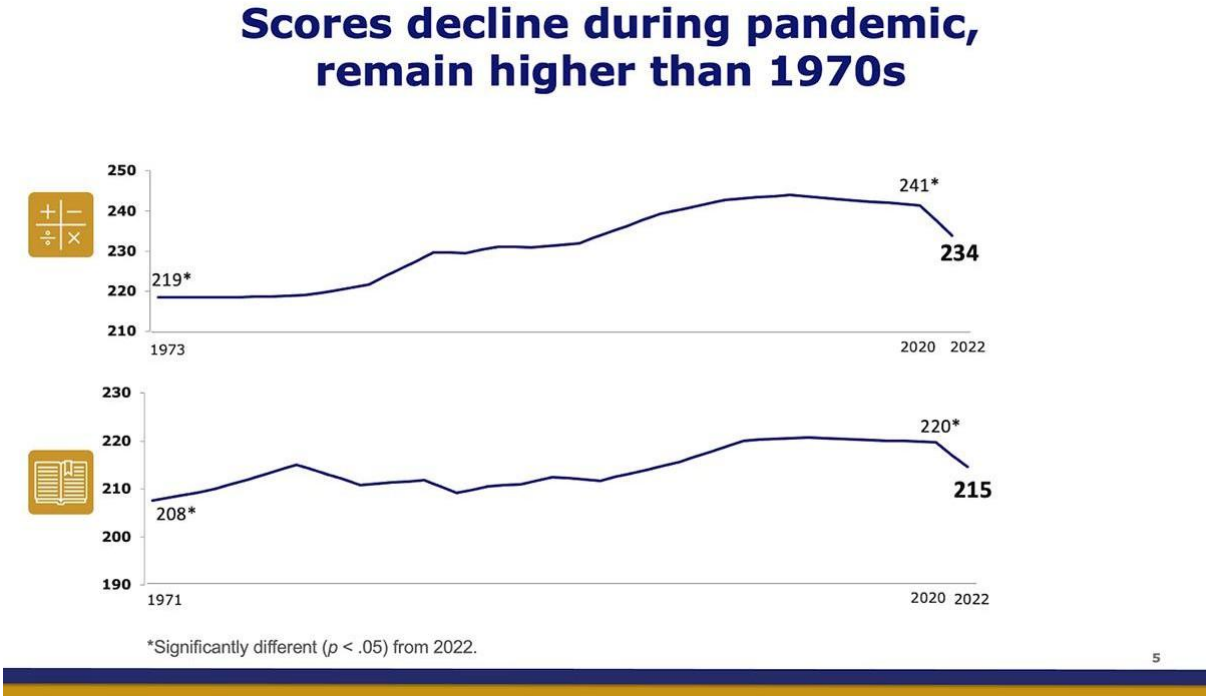
INTRODUCTION

Productivity Enhancer is an efficient program which decomposes the tedious task of performance analytics for employees or students and automatises the process.



Source: Article on "A System Dynamics Model of Employees' Performance"

Through recent research it is evident that the performance of employees in institutions depreciates over time exponentially which leads to adversities and decline in the growth of the company. Thus, there is a need for an organized system to counter this.



Source: The74million.org

The same trend can be seen for students during and after the pandemic, requiring super visioning for the betterment of their overall performance.

The *Productivity Enhancer* can fulfil these requirements using its multiple criterion based judgement system, ensuring in depth, case by case analysis of employees and students and giving timely feedback. This will give the company performance reports while maintaining its authenticity as it is not manual.

OBJECTIVES & BENEFITS

1) Reduces Analytics Time: Eliminates time used for manually rating workers and students

2) Ease of implementation: Takes data directly from company/school database and gives output

3) Customizability: Institutions using the tool can customise the areas of performance rating for desirable result

4) Increased Efficiency: Automatization of the judgement system increases work rate of the organization while also eventually increasing efficiency of the workers

5) Anti-Alteration: Prevents malpractices of altering employee ratings or student grades based on personal preferences

6) Easy performance tracking: Managers can use productivity tools in business to create tasks and objectives before assigning those tasks to team members

PLATFORM USED

- Python 3.11
- MySQL Command Line Client 8.0.31
- Python-MySQL Connector

REASONS FOR PROPOSING ABOVE PLATFORM

The language Python has many features that help in seamless integration with a lot of third-part software. Short compile times combined with easy-to-learn syntax makes it convenient for creating solutions that use minimal resources. Its extensive feature list includes:

1. Presence of Third Party Module
2. Extensive Support Libraries
3. Open Source and Community Development
4. Learning Ease and Support Available
5. User-friendly Data Structures

CODE

MySQL:

```
mysql> use Employees;
Database changed
mysql> create table empdata(
    -> Name varchar(30) primary key,
    -> Sales integer,
    -> positive_reviews integer,
    -> age integer,
    -> wages integer);
Query OK, 0 rows affected (0.02 sec)

mysql> insert into empdata values("Best Values", 100,100,30,20)
    -> ;
Query OK, 1 row affected (0.01 sec)

mysql> insert into empdata values("Raj", 90,90,20,30);
Query OK, 1 row affected (0.00 sec)

mysql> insert into empdata values("Shyam", 80,100,30,20);
Query OK, 1 row affected (0.00 sec)

mysql> insert into empdata values("Rita", 70,100,30,20);
Query OK, 1 row affected (0.00 sec)

mysql> insert into empdata values("Sita", 100,100,18,40);
Query OK, 1 row affected (0.00 sec)
```

```
mysql> select * from empdata;
+-------------+-------+------------------+------+-------+
| Name        | Sales | positive_reviews | age  | wages |
+-------------+-------+------------------+------+-------+
| Best Values |   100 |              100 |   30 |    20 |
| Raj         |    90 |               90 |   20 |    30 |
| Rita        |    70 |              100 |   30 |    20 |
| Shyam       |    80 |              100 |   30 |    20 |
| Sita        |   100 |              100 |   18 |    40 |
+-------------+-------+------------------+------+-------+
5 rows in set (0.00 sec)
```

Python:

```python
import csv
import mysql.connector
import matplotlib.pyplot as plx
#Logo Print
d = ""
l = [] #record list
ad = False
f = open("Logo.txt","r")
print(f.read())
print("-"*200)
f.close()
#Guide start
print("Guide: format sql table in the following format [Name,var1,var2,var3,var4]")
print("Variables 1 to 3 are positive indicators while Variable 4 is a negative indicator")
print("Insert Row with best possible values at the beginning of the table")


#Get Values from sql database
def dbg():
 l = []
 global d
 try:
  cxn = mysql.connector.connect(user = 'root', password = '1234',host = 'localhost')
  cursor = cxn.cursor()
  d = input("please tell name of database ")
  cursor.execute(f'use {d}')
  t = input("enter the table name ")
  cursor.execute(f'select * from {t}')
  l = cursor.fetchall()
  cxn.close()
 except:
    print("Unable to connect to mysql service")
 print("-"*100)
 return l
```

```python

print("Aquiring orignal Data!")
l = dbg()

c = input("Do you want to change variable importance? y/n ")
def weight():

 if c == "y":
    print("Insert Values b/w 1 - 10")
    print("hi")
    return [int(input("w1: ")),int(input("w2: ")),int(input("w3: ")),int(input("w4: "))]
 else:
    return [9,7,6,9]

def algorithm(v1,v2,v3,v4,weights,maxvals,n=1):
    if n == 0:
        return (weights[0]*v1 + weights[1]*v2 + weights[2]*v3)/(weights[3]*v4)
    else:
        x = algorithm(maxvals[0],maxvals[1],maxvals[2],maxvals[3],weights,maxvals,0)
        return (((weights[0]*v1 + weights[1]*v2 + weights[2]*v3)/(weights[3]*v4))/x)*100

```

```
def creator(l):
    global ad
    ad = True
    maxvals = []
    s = []
    w = weight()
    for i in range(len(l)):
        if i == 0:
            maxvals = l[i][1:]
        else:
            s += [[l[i][0],algorithm(l[i][1],l[i][2],l[i][3],l[i][4],w,maxvals)]]
    return s

#write to sql
def sqlw():
 global d
 global x
 try:
  cxn = mysql.connector.connect(user = 'root', password = '1234',host = 'localhost')
  cursor = cxn.cursor()
  cursor.execute(f'use {d}')
  tw = input("enter new table name ")
  cursor.execute(f'create table {tw}(Name varchar(30) primary key,Productivity integer);')
  for i in x:
     cursor.execute(f'insert into {tw} values("{i[0]}",{int(i[1])});')
  print("table created")
  cxn.commit()
  cxn.close()
 except:
    print("Error Writing")
 print("Done")

```

```
#Plot
def plot(l):
    x =[]
    y =[]

    for i in l:
        x += [i[0]]
        y += [i[1]]
    plx.plot(x,y)

#csv dump
def csvw(l):
    n = input("Enter Name of the new file ")
    with open(f"{n}.csv", 'w', newline='') as f:
     writer = csv.writer(f)
     writer.writerows(l)
    print(f'Made Csv file of name {n}')

#Analyse
y = input("Do you want to start analysis? y/n ")
if y == "y":
    print("Starting Analysis!")
    x =  creator(l)
    print("Done Analysis")

```

```
else:
    d = print("using existing sql database \n please enter the name of the productivity database ")
    x = dbg()
print("-"*100)
print(x)
while True:
    c = int(input("1: write to mysql \n 2: Write to CSV \n 3: Plot Data \n 4: Exit \n "))
    if c == 1:
        sqlw()
    elif c== 2:
        csvw(x)
    elif c == 3:
        plot(x)
    else:
        break


```

Output:

Python:

```
 ___  ____  __  ____  _  _  ___  ____  __  __ _  __  ____  __  ____
(  _ \(  _ \ /  \(    \/ )( \ / __)(_  _)(  )(  ( \ / _\(_  _)/  \(  _ \
 ) __/ )   /(  O )) D () \/ (( (__   )(   )( /    //    \ )(  (  O ))  /
(__)  (__\_) \__/(____/\____/ \___) (__) (__)\_)__)\_/\_/(__) \__/(__\_)

----------------------------------------------------------------------------------------------------
Guide: format sql table in the following format [Name,var1,var2,var3,var4]
Variables 1 to 3 are positive indicators while Variable 4 is a negative indicator
Insert Row with best possible values at the beginning of the table

please tell name of database employees

enter the table name empdata
----------------------------------------------------------------------------------------------------
Starting Analysis!

Do you want to change variable importance? y/n n
Done Analysis
----------------------------------------------------------------------------------------------------

enter new table name productivity
database created
Done
```

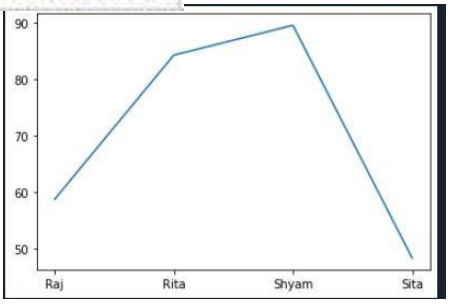
MySQL:

```
mysql> show tables;
+----------------------+
| Tables_in_employees |
+----------------------+
| empdata              |
| productivity         |
+----------------------+
2 rows in set (0.00 sec)

mysql> select * from productivity;
+-------+--------------+
| Name  | Productivity |
+-------+--------------+
| Raj   |           58 |
| Rita  |           84 |
| Shyam |           89 |
| Sita  |           47 |
+-------+--------------+
4 rows in set (0.00 sec)
```

CSV:

A	B
Raj	58.42697
Rita	84.83146
Shyam	89.88764
Sita	47.97753



Software Development Life Cycle

Part 1: Preliminary Analysis

I tried to gather upon some ideas and started surfing on the internet, in order to get an idea that can actually help the society.

Part 2: Analysis (feasibility study)

I finalized one of the ideas and started my research for the project. I figured out the problems and the expectations that the consumer will have while using the software.

Part 3: Project designing

I prepared a study and gathered up all my research. As mentioned above, we have designed the program using multiple platforms.

Part 4: Program Coding

I started coding the program according to my research and designs that I had set up trying to include all my ideas in the best and most convenient way possible.

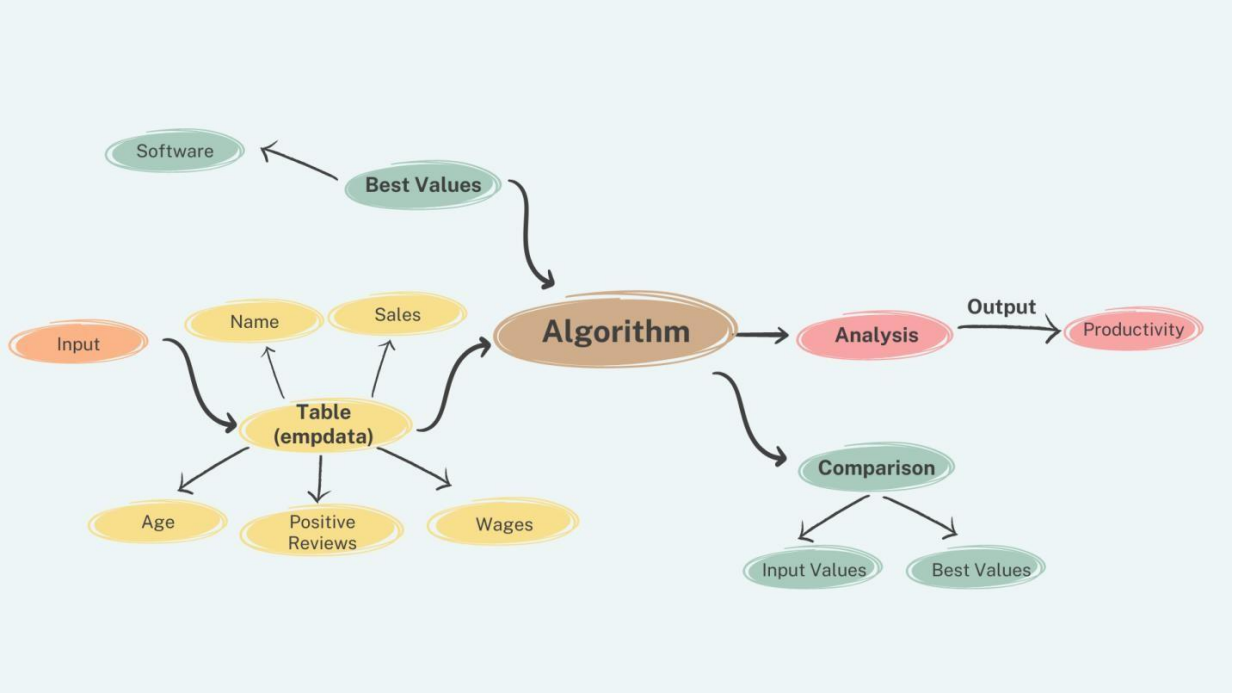
Part 5: Testing & Integration

I tested the program for any errors and debugged it on the basis of the requirements. I put together everything and went towards completing the software.

Part 6: Implementation and maintenance

I thought about the ways in which this software can be implemented and how exactly can it enhance the productivity of a person by analyzing it. I fixed some parameters on which the productivity would be tested. Lastly, I analyzed the usefulness of my project and took some opinions from people around me.

Part 7: Relationship Chart



BIBLIOGRAPHY

While preparing the project, I have utilized resources such as :

- Computer Science with Python by Sumita Arora
- Lectures and Notes of Regular Classes