Gyan Ganga International Academy, Bhopal

A PROJECT REPORT ON

VidyaGrapher

SELF RESULT ANALYSIS TOOL

For AISSCE 2022 Examination as a part of Informatics Practices Course (065)

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Under the guidance of:

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CONTENT

CERTIFICATE

This is to certify that the Project entitled, "**VidyaGrapher: Self Result Analysis Tool**" is a bonafide work done by Mr. Dhruv Jain of class XII-D1 Session 2021-2022 in partial fulfilment of CBSE's AISSCE Examination 2022 and has been carried out under my direct supervision and guidance. This report or a similar report on the topic has not been submitted for any other examination and does not form a part of any other course undergone by the candidate.

Signature of External Examiner

Signature of Teacher

Mrs. Parul Sharma

Signature of Principal

Mr. D. Ashok

Place: Bhopal

Date: 18 January, 2022

Acknowledgement

I undertook this Project Work, as a part of my XII Informatics Practices course. I have tried to apply my best of knowledge and experience, gained during the study and class work experience. However, developing software system is generally a quite complex and time-consuming process. It requires a systematic study, insight vision and professional approach during the design and development. Moreover, the developer always feels the need, the help and good wishes of the people near you, who have considerable experience and idea.

I would like to extend my sincere thanks to my teacher **Mrs. Parul Sharma**. I am very much thankful to our Principal **Mr. D. Ashok** for giving valuable time and moral support to develop this software.

I would like to take the opportunity to extend my sincere thanks and gratitude to my father **Dr. Madhur Raj Jain**, and my mother **Dr. Namita Jain** for being a source of inspiration and providing time and freedom to develop this software project.

Dhruv Jain

Class XII D1

Objective and Scope of the Project

This is project is developed **to help students** who wish to find out how much more efforts they are required to put in **to achieve their target goals**, Analysing one's performance after giving any examination is a critical step in achieving success, this project helps all those students who are not able to get opportunity to analyse if their performance is improving or if their efforts are up to the mark. The purpose of the software project is to develop a tool using which any individual student can keep record of marks, set a targets and graphically analyse his/her performance.

The proposed project is supposed to have the following functionalities:

- ✓ To provide an interface that is linked to the marks recording database.
- ✓ To provide an interface that the student could use to enter their marks and update them for any particular test
- ✓ **Effort rating** and **Set and Update target percentage option which would enable students to keep track of their performance.**
- ✓ To **provide functionality to see overall performance or performance of any particular test through suitable graphs.**
- ✓ To identify possibilities of simplification of data analysis using modern IT tools and practices.

This software does not require any training and a user can use the software with little to no experience at all.

Despite the best efforts, the following limitations and functional boundaries are visible, which limits the scope of the application software:

1. There is **no provision to set number of subjects or add marks of any particular subject.**
2. There is **no provision to set target time in which student wants to achieve his goal.**

A few additions to the project that could be arranged in future:

1. Giving the user the ability to **print their result** and graphical summary.
2. Adding an option to analyse the result **subject wise** and perform statistical operations on result for better analysis.

Theoretical Background

1. What is a Database?

A database is a collection of information related to a particular subject or purpose, such as tracking student result or maintaining a collection. Using any RDBMS application software (i.e. relational database management system) like MS SQL you can manage all your information from a single database. Within the database, you can easily divide your data into separate storage containers called tables.

A table is a collection of data about a specific topic, such as products or suppliers. Using a separate table for each topic means you can store that data only once, which makes your database more efficient and reduces data-entry errors. Table organises data into columns (called fields) and rows (called records).

A Primary key is one or more fields whose value or values uniquely identify each record in a table. In a relationship, a primary key is used to refer to specific record in one table from another table. A primary key is called foreign key when it is referred to from another table.

To find and retrieve just the data that meets conditions you specify, including data from multiple tables, create a query. A query can also update or delete multiple records at the same time, and perform built-in or custom calculations on your data.

MySQL

MySQL is a RDBMS that is based on SQL language. It is fast, reliable and easy to use. It is based on client/server architecture and works numerous platforms

2. What is Python?

Python is a widely-used, interpreted, and high-level programming language. Python is a general purpose language, meaning it can be used to create a variety of different programs and isn't specialized for any specific problems.

In python we can easily point out to a specific data location using pointers called variable.

IDLE is an integrated development environment for Python, which has been bundled with the default implementation of the language

MATPLOTLIB

Matplotlib is one of the most popular Python packages used for data visualization. It is a cross-platform library for making plots from data in arrays.

Problem definition and Analysis

"The hardest part of building a software system is deciding precisely what to build. No other part of the conceptual work is so difficult as establishing the detailed technical requirement. Defining and applying good, complete requirements are hard to work, and success in this endeavour has eluded many of us. Yet, we continue to make progress."

– Fred Brooks

Problem definition describes the What of a system, not How. The quality of a software product is only as good as the process that creates it. Problem definition is one of the most crucial steps in this creation process. Without defining a problem, developers do not know what to build, customers do not know what to expect, and there is no way to validate that the built system satisfies the requirement.

Problem definition and Analysis is actually learning about the problem to be solved, understanding the needs of customer and users, trying to find out who the user really is, and understanding all the constraints on the solution. It includes all activities related to the following:

- ✓ Identification and documentation of user's needs.
- ✓ Creation of a document that describes the external behaviour and the association constraints that will satisfies those needs.
- ✓ Analysis and validation of the required documents to ensure consistency, completeness, and feasibility
- ✓ Evolution of software using the needs.

System Implementation

Hardware used

While developing the system, the used hardware was:

PC with **Intel(R) Core(TM) i7-7500U** processor dual core at **2.90 GHz and 2.95 GHz**, having **16 GB of RAM** and other required peripherals.

Software used

- **Windows 10 Pro** as Operating System
- Python **IDLE** as IDE for front-end development.
- **MySQL 8.0** as back-end server.
- **Microsoft office professional plus 2016** for documentation.

System Design and development

Database Design

The most important part of any project is its data storage structure. A logical data is often represented as, records kept in different tables after reducing anomalies and redundancies.

The database used in this project is named **vgr (an abbreviation for VidyaGrapher)** and contains two separate tables for maintaining **exams** and **target percentage.**

```
mysql> show tables;
+---------------+
| Tables_in_vgr |
+---------------+
| e2            |
| tgpct1        |
+---------------+
2 rows in set (0.00 sec)
```

Tables:

For exams table used is named e2

```
+-------+-------------+------+-----+---------+-------+
| Field | Type        | Null | Key | Default | Extra |
+-------+-------------+------+-----+---------+-------+
| exco  | char(4)     | NO   | PRI | NULL    |       |
| ename | varchar(20) | YES  |     | NULL    |       |
| totma | int         | YES  |     | NULL    |       |
| maobt | int         | YES  |     | NULL    |       |
+-------+-------------+------+-----+---------+-------+
```

For exams target percentage table used is named tgpct1

```
+-------+------+------+-----+---------+-------+
| Field | Type | Null | Key | Default | Extra |
+-------+------+------+-----+---------+-------+
| pctid | int  | YES  |     | NULL    |       |
| tgpct | int  | YES  |     | NULL    |       |
+-------+------+------+-----+---------+-------+
```

FRONT END PROGRAMMING

Code Snippets And Corresponding Results:

```
import matplotlib.pyplot as pylt
print("-"*71)
vgpwd=input("please enter the mysql password of your system: ")
print("WELCOME")
print("-"*71)
#(if it is run on any other without data base computer the tool will run without any error)
import mysql.connector
mydb=mysql.connector.connect(host="localhost",user="root", passwd=vgpwd)
cursor=mydb.cursor(buffered=True)
cursor.execute("create database if not exists vgr")
cursor.execute("use vgr") #vgr==VidyaGrapher database which will store the marks entered
#creating the main table exam(e2) and target percentage(tgpct1)
cursor.execute("create table if not exists e2(exco char(4) primary key,ename varchar(20),totma integer,maobt integer)")
cursor.execute("create table if not exists tgpct1(pctid integer,tgpct integer);")
avgpct=0
print("-"*71)
print("VidyaGrapher : RESULT ANALYSIS")
print("-"*71)
```

```
cursor.execute("select totma,maobt from e2;")
d=0
e=0
for v in cursor:
    d+=v[0]
    e+=v[1]
overpct=(v[1]/v[0])*100
print(" YOUR CURRENT OVERALL PERCENTAGE
",overpct)
cursor.execute("select tgpct from tgpct1 where
pctid=1;")
for z in cursor:
    targetpct=z[0]
print("CURRENTLY your target is",targetpct)
print("-"*71)
while(True):
    print("1=add new exam result")
    print("2=view previous scores")
    print("3=update previous exam result")
    print("4=overall performance and CURRENT
PROJECTION")
    print("5=analyse a particular exam result")
    print("6=set or update TARGET PERCENTAGE")
    print("7=forgot exam code")
    print("8=check success index")
    print("9=exit")
    ch=input("Enter your choice:")
```

```
------------------------------------------------------------------------
please enter the mysql password of your system: 123456
WELCOME
------------------------------------------------------------------------
------------------------------------------------------------------------
VidyaGrapher : RESULT ANALYSIS
------------------------------------------------------------------------
 YOUR CURRENT OVERALL PERCENTAGE  87.0
CURRENTLY your target is 90
------------------------------------------------------------------------
1=add new exam result
2=view previous scores
3=update previous exam result
4=overall performance and CURRENT PROJECTION
5=analyse a particular exam result
6=set or update TARGET PERCENTAGE
7=forgot exam code
8=check success index
9=exit
Enter your choice:1
------------------------------------------------------------------------
```

```
    if(ch=='1'):
        while True:
            print("-"*71)
            print("All information prompted are
mandatory to be filled")
            exco=input("Enter exam code (make
sure it is unique):")
            ename=str(input("Enter exam name :
"))
            totma=int(input("Enter total marks of
test : "))
            mobt=int(input("marks obtained: "))
            cursor.execute("insert into e2
values('{}','{}',{},{});".format(exco,ename,totma
,mobt))
            mydb.commit()
            print("-"*71)
```

```
            print("exam result successfully
registered!!!")
            print("-"*71)
            j=int(input("1.enter more result \n
2.go to menu\n"))
            if j==1:
                ch==1
            if j==2:
                break
```

```
Enter your choice:1
------------------------------------------------------------------------
All information prompted are mandatory to be filled
Enter exam code (make sure it is unique):4
Enter exam name : mock 3
Enter total marks of test : 100
marks obtained: 96
------------------------------------------------------------------------
exam result successfully registered!!!
------------------------------------------------------------------------
1.enter more result
 2.go to menu
```

```
    if(ch=='2'):
        cursor.execute("select * from e2;")
        for d in cursor:
            print(d)
        input("enter any key to go back to the
menu.....")
```

```
Enter your choice:2
('1', 'jeeadv1', 360, 348)
('2', 'mains 01', 300, 261)
('4', 'mock 3', 100, 96)
enter any key to go back to the menu.....
```

```
    if(ch=='3'):
        print("-"*71)
        print("update result")
```

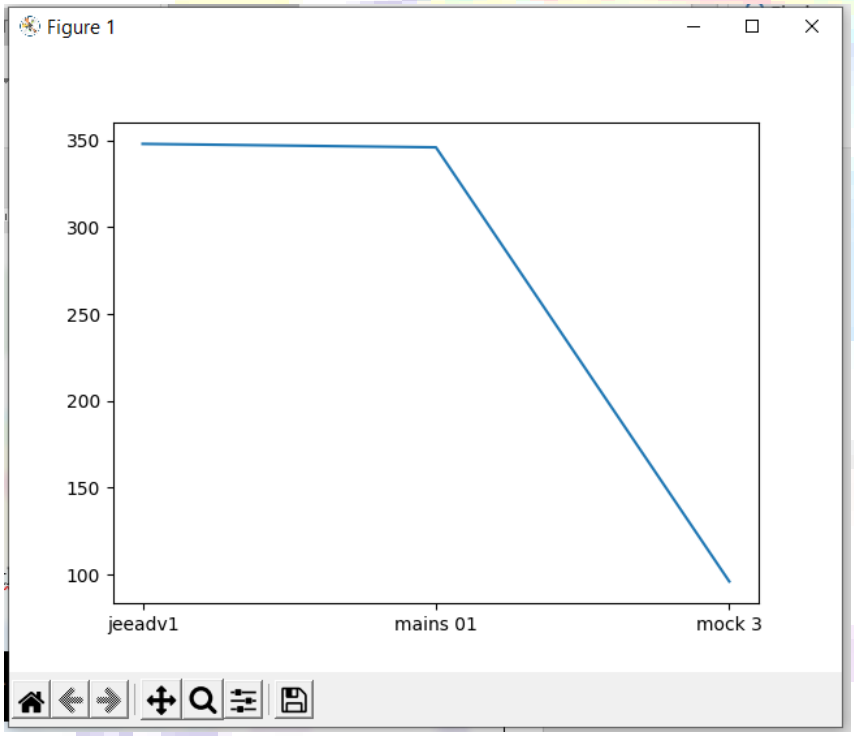
```
        exacode=input("enter exam code for exam
which you wish to update: ")
        marksnew=int(input("enter the new total
marks of subject: "))
        marksgot=int(input("enter the new marks
you obtained: "))
        cursor.execute("update e2 set maobt={}
where exco = '{}' ;".format(marksgot,exacode))
        cursor.execute("update e2 set totma={}
where exco = '{}' ;".format(marksnew,exacode))
        mydb.commit()
        print("-"*71)
        cursor.execute("select * from e2 where
exco='{}';".format(exacode))
        print("-"*71)
        for d in cursor:
            print(d)
```

```
Enter your choice:3
-----------------------------------------------------------------------
update result
enter exam code for exam which you wish to update: 2
enter the new total marks of subject: 360
enter the new marks you obtained: 346
-----------------------------------------------------------------------
-----------------------------------------------------------------------
('2', 'mains 01', 360, 346)
```

```
    if(ch=='4'):
        print("-"*71)
        print("OVERALL RESULT ANALYSIS")
        cursor.execute("select ename,maobt from
e2;")
        yaxis=[]
        xaxis=[]
```

```
        for a in cursor :
            yaxis.append(a[1])
            xaxis.append(a[0])
        pylt.plot(xaxis,yaxis)
        pylt.show()
        pylt.bar(xaxis,height=yaxis,width=1)
        pylt.show()
```

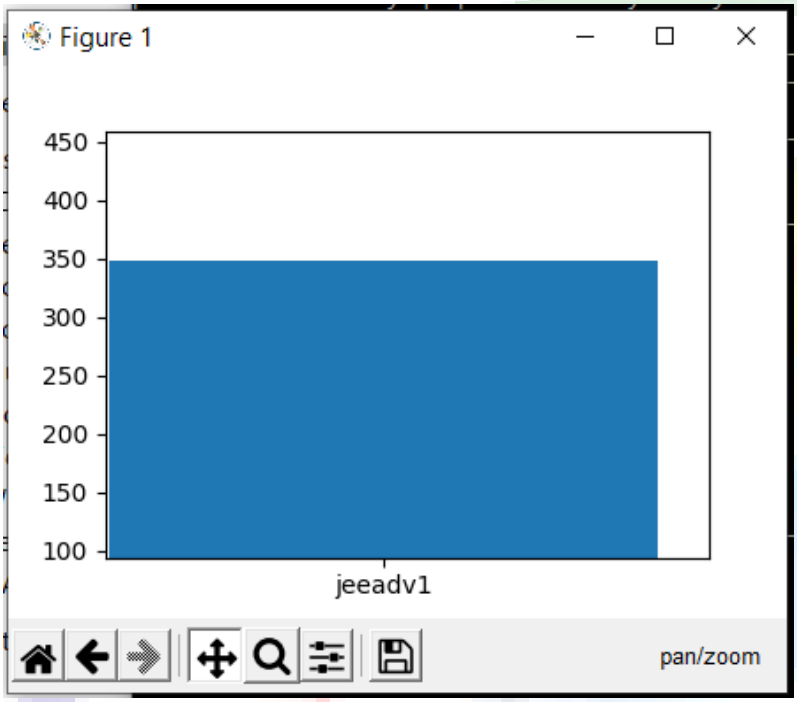
```
Enter your choice:4
------------------------------------------------------------------------
OVERALL RESULT ANALYSIS
```




```
    if(ch=='5'):
        print("-"*71)
        print("SPECIFIC exam RESULT ANALYSIS")
        exco_a=input("enter exam code for exam to
be analysed")
        cursor.execute("select ename,totma,maobt
from e2 where exco='{}';".format(exco_a))
        for a in cursor:
```

```
            pylt.bar(a[0],height=a[2],width=1)
        pylt.show()
```

```
Enter your choice:5
-----------------------------------------
SPECIFIC exam RESULT ANALYSIS
enter exam code for exam to be analysed1
```




```
 if(ch=='6'):
        print("-"*71)
        print("update or set target percentage")
        print("-"*71)
        tpct=int(input("enter the new percentage
you target"))
        cursor.execute("update tgpct1 set
tgpct={} where pctid=1;".format(tpct))
        mydb.commit()
        print(" new target percentage set :)")
        print("-"*71)
```

```
Enter your choice:6
------------------------------------------------------------------
update or set target percentage
------------------------------------------------------------------
enter the new percentage you target97
 new target percentage set :)
------------------------------------------------------------------
```

```
    if ch=="7":
        print("Exam Codes Of All your Exams :)")
        cursor.execute("select exco,ename from
e2")
        for code in cursor:
            print(code)
```

```
Enter your choice:7
Exam Codes Of All your Exams :)
('1', 'jeeadv1')
('2', 'mains 01')
('4', 'mock 3')
```

```
    if ch=="8":
        print("-"*71)
        print("Success Index")
        print("-"*71)
        print("CURRENTLY your target
is",targetpct)
        print(" YOUR CURRENT OVERALL PERCENTAGE
",overpct)
        print("-"*71)
        if targetpct < overpct :
            print("congrats you are ahead of goal
by",overpct-targetpct ," percent")
            print("we encourage you to raise your
goal")
```

```
        else:
            print("currently you are",targetpct-
overpct," to your goal.")
            print("All the best")
        print("-"*71)
```

```
-----------------------------------------------------------------------
Success Index
-----------------------------------------------------------------------
CURRENTLY your target is 97
 YOUR CURRENT OVERALL PERCENTAGE  96.0
-----------------------------------------------------------------------
currently you are 1.0  to your goal.
All the best
-----------------------------------------------------------------------
```

```
    if ch=="9":
        input("bye ")
        break
```

User Manual

Hardware Requirements

1. Any Intel® based processor.(preferably newer than core i5)
2. 128MB RAM and 4GB storage minimum for database creation, storage and smooth running.
3. Standard I/O devices .
4. LAN is required for client-server installation

Software Requirements

1. Operating system (preferably Windows)
2. MySQL version 8.0
3. Latest version of python to run the python

Database Installation

The software project is such that it does not require any prior database installation. If the program is run on a new computer, it will dynamically create the required databases and table.

The computer must have an sql server installed and must remember its password.

Knowing the MySQL password is prerequisite to run the program

References

While working on this project titled **VidyaGrapher: Result analysis tool** the following books and websites were referred by me:

https://cbseacademic.nic.in/web_material/CurriculumMain22/SrSec/Informatics_Practices_SrSec_2021-22.pdf

https://www.w3schools.com/python/

https://docs.python.org/3/

https://dev.mysql.com/doc/

https://stackoverflow.com/

https://matplotlib.org/stable/users/index.html

https://www.youtube.com/c/codeitup

Other than the above mentioned sources my class experience also helped me to complete the software project.