SACRED HEART SCHOOL

Rajiv Nagar, Kharika, Lucknow

A Project Report

on

Student Result Analysis System

For

AISSCE 202 -2 Examination

[As a part of the Informatics Practices Course (065)]

SUBMITTED BY:

1) [Roll No-_____]

Under the Guidance of:

<u>SUNIL SIR</u>

PGT (Comp. Sc)

CERTIFICATE

This is to certify that the Project entitled ***Student Result Analysis System*** *is a bonafide work done by _____ of class XII Session 202 -2 in partial fulfillment of CBSE's AISSCE Examination 202 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 Students

Name:

……..
Signature of Teacher/Guide

Name: *SUNIL SIR*
PGT (Comp.Sc.)

……..……
Signature of Principal

Signature of External Examinar

……

Place:…….

Date:……..

ACKNOWLEDGEMENT

I undertook this Project work, as the part of my XII-Informatics Practices course. I had 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 and gratitude to my teacher Mr. Sunil Sir. I am very much thankful to our Principal Mrs. Indu S. Nair 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 parents for being a source of inspiration and providing time and freedom to develop this software project.

I also feel indebted to my friends for the valuable suggestions during the project work.

_____ *[RollNo-_____]*

Class XII

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1. Introduction

This software project is developed to automate the functionalities of a Report Card Management System. The purpose of the software project is to develop the Management Information System (MIS) to automate the record keeping of Students's entry, Marks entry, prepare report card , Search Student's record, Update a Record and delete a Record with a view to enhance the decision making of the functionaries.

A MIS mainly consists of a computerized database, a collection of inter-related tables for a particular subject or purpose, capable to produce different reports relevant to the user. An application program is tied with the database for easy access and interface to the database. Using Application program or front-end, we can store, retrieve and manage all information in proper way.

This software, being simple in design and working, does not require much of training to users, and can be used as a powerful tool for automating a Report Card Management System.

During coding and design of the software Project, Python a powerful front-end tool is used for coding simplicity. As a back-end CSV is used.

2. Objective & Scope of the Project

The objective of the software project is to develop a computerized MIS to automate the functions of a Stock Management. This software project is also aimed to enhance the current record keeping system, which will help admin or office staff to retrieve the up-to-date information at right time in right shape.

The proposed software system is expected to do the following functionality-

- ✓ *To provide a user friendly and centralized environment for MIS activities.*
- ✓ *The proposed system should maintain all the records and transactions, and should generate the required reports and information when required.*
- ✓ *To identify the critical operation procedure and possibilities of simplification using modern IT tools and practices.*

In its current scope, the software enables user to retrieve and update the information from centralized database designed with MySQL. This software does not require much training time of the users due to limited functionality and simplicity.

3. Theoretical Background

3.1 What is Database?

Introduction and Concepts:

A database is a collection of information related to a particular subject or purpose, such as tracking customer orders or maintaining a music collection. Using any RDBMS application software like MS SQL Server, MySQL, Oracle, Sybase etc, you can manage all your information from a single database file. Within the file, divide your data into separate storage containers called tables. You may and retrieve the data using queries.

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.

3.2 What is CSV?

Comma-separated values (CSV) is a text file format that uses commas to separate values. A CSV file stores tabular data (numbers and text) in plain text, where each line of the file typically represents one data record. Each record consists of the same number of fields, and these are separated by commas in the CSV file.

Applications

CSV is a common data exchange format that is widely supported by consumer, business, and scientific applications. Among its most common uses is moving tabular data[8][9] between programs that natively operate on incompatible (often proprietary or undocumented) formats.[1] For example, a user may need to transfer information from a database program that stores data in a proprietary format, to a spreadsheet that uses a completely different format. Most database programs can export data as CSV most spreadsheet programs can read CSV data, allowing CSV to be used as an intermediate format when transferring data from a database to a spreadsheet.

CSV is also used for storing data. Common data science tools such as Pandas include the option to export data to CSV for long-term storage.[10] Benefits of CSV for data storage include the simplicity of CSV makes parsing and creating CSV files easy to implement and fast compared to other data formats, human readability making editing or fixing data simpler,[11] and high compressibility leading to smaller data files.[12] Alternatively, CSV does not support more complex data relations and makes no distinction between null and empty values, and in applications where these features are needed other formats are preferred.

The Main Features of CSV

The files have a simple structure and are human-readable;
The data can be easily imported or exported into other programs;
CSV file format can be easily and accurately compressed;
The running costs are not high;
Perfect fit for getting data out of one application and into another one;

3.3 Python

Python is an easy-to-learn yet powerful object oriented programming language. It is developed by Guido Van Rossum in 1991. Python is an interpreted language

Features of Python

1. *Easy to Use:-Very simple and simple syntax. It can be your first programming language too.*
2. *Python is case sensitive: Case sensitivity is the phrase used to describe a programming languages ability to distinguish between upper and lower case versions of a letter in the language's character set.* ***means*** *that x=20 is different from X=30 . The variable of John is different from the variable of john.*
3. *It is an object oriented language:* ***Python is an object-oriented programming language****. What this means is we can solve a problem in Python by creating objects in our programs.*
4. *Dynamically typed:* ***Python*** *variable assignment is different from some of the popular languages like c, c++ and java. There is no declaration of a variable, just an assignment statement. ... But* ***Python*** *is a* ***dynamically typed*** *language. It doesn't know about the* ***type*** *of the variable until the code is run Python will automatically recognize the type of variable with the help of the value in the runtime.*
5. *Indentation is used in place of curly braces:* ***Indentation*** *refers to the spaces at the beginning of a code line.* ***Python*** *uses* ***indentation*** *to indicate a block of code.*
6. *Use variable without declaration: V****ariables*** *are containers for storing data values. Unlike other programming languages,* ***Python*** *has no command for* ***declaring*** *a* ***variable****. A* ***variable*** *is created the moment* ***you*** *first assign a value to it.*
7. *Interpreted Language: Python is an interpreted language, not a compiled language. This means that the python interprets and executes the code line by line at a time. It makes python an easy-to-debug language and thus suitable for beginners to advance users.*
8. *Large library: A* ***Python*** *library is a reusable chunk of code that you may want to include in your programs/ projects. To make use of the functions in a* ***module****, you'll need to* ***import*** *the* ***module*** *with an* ***import*** *statement. An* ***import*** *statement is made up of the* ***import*** *keyword along with the name of the* ***module****.*

9. *With the Python interactive interpreter: it is easy to check python commands With the Python interactive interpreter it is easy to check Python commands.*
10. *Platform Independent: Python can run equally well on variety of platforms-windows, Linus/UNIX, super computers, smart phones*

4. Problem Definition & Analysis

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

Problem definition describes the 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 the activity that encompasses 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 customer's or user's needs.*
- ✓ *Creation of a document that describes the external behavior and the association constraints that will satisfies those needs.*
- ✓ *Analysis and validation of the requirements documents to ensure consistency, completeness, and feasibility*
- ✓ *Evolution of needs.*

After the analysis of the functioning of a Student Result Analysis system, the proposed System is expected to do the following: -

- ✓ *To provide a user friendly, integrated and centralized environment for computerized Student Result Analysis system.*
- ✓ *The proposed system should maintain all the records and transactions, and should generate the required reports and information when required.*
- ✓ *To provide efficient and secured Information storage, flow and retrieval system, ensuring the integrity and validity of records.*
- ✓ *To identify the critical operation procedure and possibilities of simplification using modern IT tools and practices.*

5. System Implementation

5.1 The Hardware used:

While developing the system, the used hardware is:

PC with Dual Core processor or sometimes, Laptop with Core i3 processor having 2 GB RAM, SVGA and other required devices.

5.2 The Softwares used:

- *Microsoft Windows® 7 & 8 as Operating System.*
- *Python 3.x.x as Front-end Development environment.*
- *CSV as Back-end for Database for Testing.*

6. How to install Software:

Hardware Requirement-

- Intel Pentium/Celeron or similar processor based PC at Client/Server end.
- 128 MB RAM and 4GB HDD space (for Database) is desirable.
- Standard I/O devices like Keyboard and Mouse etc.
- Printer is needed for hard-copy reports.
- Local Area Network(LAN) is required for Client-Server Installation

Software Requirement-

- Windows 7, 8 OS is desirable.
- Python Ver 3.x.x or higher should be installed.
- CSV file.

7. System Design & Development

Database Design

The software project for Student Result Analysis system contains one CSV file, **class_X_result.csv**.

	A	B	C	D	E	F	G	H	I	J	K	L
1	Rollno	Sex	Name	Hindi	English	Maths	Science	SST	IT	Total	Percentag	Result
2	22213861	M	DILIP KUMAR	47	61	33	52	75	89	357	59.5	Pass
3	22213862	M	AARUNI SHANDILYA	84	95	86	87	92	93	537	89.5	Pass
4	22213863	M	ADARSH NARAYAN SINGH	53	72	43	48	84	95	395	65.83333	Pass
5	22213864	F	AFFREEN KHANAM	77	73	62	58	68	95	433	72.16667	Pass
6	22213865	M	ANAND KUMAR	95	98	88	90	93	97	561	93.5	Pass
7	22213866	M	ANKIT BHARTI	96	98	99	96	95	95	579	96.5	Pass
8	22213867	F	ANSHU PRIYA	93	99	93	77	95	95	552	92	Pass
9	22213868	F	APOORVA	98	100	99	98	97	95	587	97.83333	Pass
10	22213869	M	ARPIT SAW	87	93	87	78	95	90	530	88.33333	Pass
11	22213870	M	ATUL KUMAR	79	95	67	69	95	84	489	81.5	Pass
12	22213871	M	ABHINANDAN JHA	91	97	92	95	95	83	553	92.16667	Pass
13	22213872	M	AYUSH KUMAR	64	82	38	48	77	94	403	67.16667	Pass

I/O Forms Menu & Coding:

The software project for Student Result Analysis system contains various Menu Items along with programming codes.

```
====================== RESTART: C:\Python37\csv_read.py ==================
**************************************************************************
***************** Enter 1  To Extract particular Fields      *********
***************** Enter 2  To Search Record based on Rollno  *********
***************** Enter 3  To Show Bar Graph                 *********
***************** Enter 4  To Create CSV file                *********
***************** Enter 5  To Create CSV file (Sorted)       *********
***************** Enter 6  To Search Record based on NaN     *********
***************** Enter 0 to exit                            *********
**************************************************************************
Enter Your Choice.....
```

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as mtl
#import csv file
result=pd.read_csv("e:\class_X_result.csv")
#print(result.head(5)) # read first 5 records
ch=7
yes=2

while ch>0:
   print("*"*70)
   print("****************** Enter 1  To Extract particular Fields      *********")
   print("****************** Enter 2  To Search Record based on Rollno  *********")
   print("****************** Enter 3  To Show Bar Graph                *********")
   print("****************** Enter 4  To Create CSV file               *********")
   print("****************** Enter 5  To Create CSV file (Sorted)      *********")
   print("****************** Enter 6  To Search Record based on NaN    *********")
   print("****************** Enter 0 to exit                          *********")

   print("*"*70)
   ch=int(input("Enter Your Choice....."))
   if ch==1:
      print("availabe columns are...",result.columns.values)

      colno=[]
      while yes>0:
```

```
        yes=int(input("Want to extract column.... press..... '1' other wise press... '0'"))
        if yes==1:
            colname=input("Enter the column Name ")
            colno.append(colname)
            print(colno)
    x=len(colno)
    print(colno)


    res=pd.read_csv("e:\class_X_result.csv",usecols=colno)
    print(res.head(2))
if ch==2:
    ro=int(input("Enter roll number of Student"))
    print(result[result["Rollno"]==ro])
    for x,data_at_particular_row in result.iterrows():
        if data_at_particular_row["Rollno"]==ro:
            print(data_at_particular_row)


if ch==3:
    #result=pd.read_csv("e:\class_X_result.csv",\
     #         usecols=["Rollno","Hindi","English","Maths","Science","SST","IT"])
    h=[result["Hindi"].mean()]
    e=[result["English"].mean()]
    m=[result["Maths"].mean()]
    s=[result["Science"].mean()]
    st=[result["SST"].mean()]
    it=[result["IT"].mean()]
```

```
        average=np.array([h,e,m,s,st,it])


        subjects=["Hindi","English","Maths","Science","SST","IT"]
        print(average)
        mtl.bar(subjects[0],h,color='red')
        mtl.bar(subjects[1],e,color='blue')
        mtl.bar(subjects[2],m,color='pink')
        mtl.bar(subjects[3],s,color='yellow')
        mtl.bar(subjects[4],st,color='g')
        mtl.bar(subjects[5],it,color='brown')


        mtl.title("Sacred Heart School\nClass X - Subject wise comparisons\nYear 2023-2024")
        mtl.ylabel("Percentage")
        mtl.xlabel("Subjects")
        mtl.show()
    if ch==4:
        print("Enter Range of Percentage to export records into new csv file")
        p1=int(input("Enter starting Percentage"))
        p2=int(input("Enter End Percentage"))
        dr=input("Enter Drive Name (like e:\ or d:\ or c:\) ")
        fname=input("Enter File Name")
        ex='.csv'
#print(myrec[['Name','Percentage']].query(('Percentage>85') and ('Percentage>85')))


        data95= result[(result['Percentage']>=p1)  & (result['Percentage']<=p2)]
        print(data95)
```

```
        data95.to_csv(dr+fname+ex,sep=',',index=False)
        print(dr+fname+ex)

    if ch==5:
        print("Enter Range of Percentage to export records into new csv file")
        p1=int(input("Enter starting Percentage"))
        p2=int(input("Enter End Percentage"))
        dr=input("Enter Drive Name (like e:\ or d:\ or c:\) ")
        fname=input("Enter File Name")
        ex='.csv'
        sort_data= result[(result['Percentage']>=p1)  & (result['Percentage']<=p2)]
        yes=int(input("Press '1' for ascending otherwise descending"))

        sort_data.sort_values(by="Percentage",ascending=False).to_csv(dr+fname+ex,sep=',',index=False)
        print(dr+fname+ex)

#sort_data.sort_values(by="Percentage",ascending=False).to_csv("d:\sortdata_75_to_85.csv",sep=',',index=Fa
lse)
    if ch==6:
        dd=result.dropna()
        y=pd.DataFrame(dd)
        #print(y)
        print("****************************************")
        ind=y.index.values
        #print(ind)
        navalue=result.drop(ind)
        na=pd.DataFrame(navalue)
```

```
        print(na[["Rollno","Name","Hindi","English","Maths","IT"]])
        print(navalue)
        #print(result.drop(ind))

        #for x in range(0,len(result)):
         #   dh=result[result["Hindi"].isnull()]

          #  de=result[result["English"].isnull()]
           # dm=result[result["Maths"].isnull()]
            #ds=result[result["Science"].isnull()]
            #dst=result[result["SST"].isnull()]
            #di=result[result["IT"].isnull()]
        #print("Null Value in Hindi",dh)
        #print("Null Value in English",de)
        #print("Null Value in Maths",dm)
        #print("Null Value in Science",ds)
        #print("Null Value in SST",dst)
        #print("Null in IT",di)
#if result["Hindi","English","Maths","Science","SST","IT"]==np.NaN:

print("thank You.....")
```

Screen Shots

Main Menu

```
====================== RESTART: C:\Python37\csv_read.py ==================
**************************************************************************
***************** Enter 1  To Extract particular Fields      *********
***************** Enter 2  To Search Record based on Rollno  *********
***************** Enter 3  To Show Bar Graph                 *********
***************** Enter 4  To Create CSV file                *********
***************** Enter 5  To Create CSV file (Sorted)       *********
***************** Enter 6  To Search Record based on NaN     *********
***************** Enter 0 to exit                            *********
**************************************************************************
Enter Your Choice......
```

If Choice =1: Extract any column(s) from CSV file

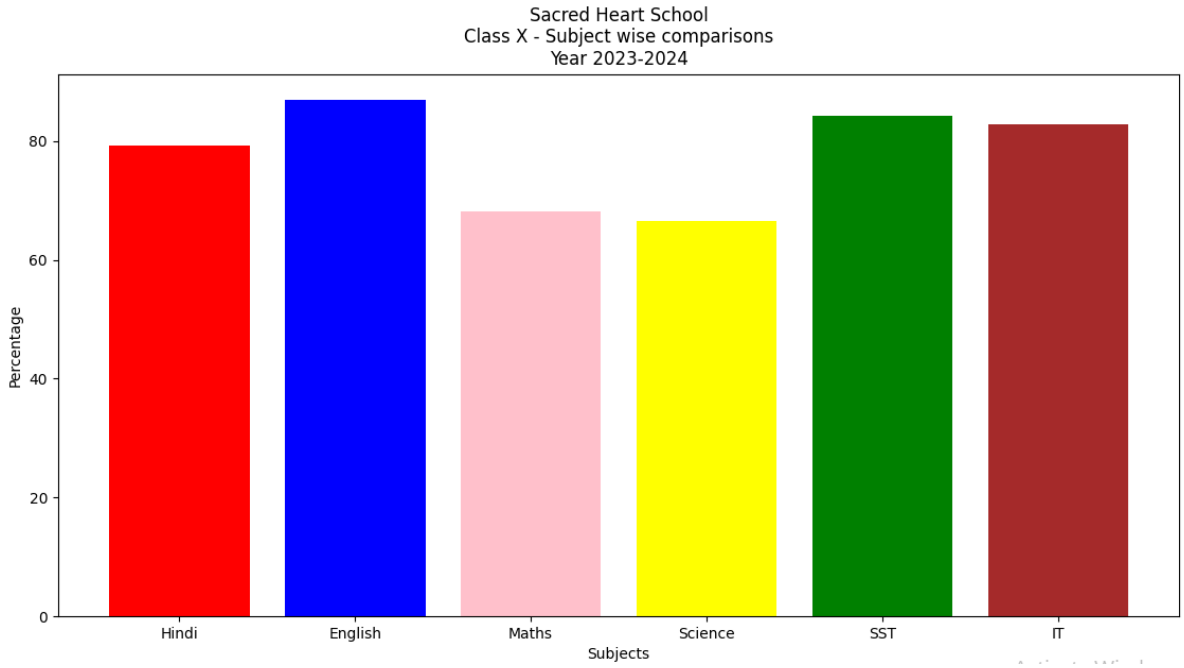
```
Enter Your Choice......1
availabe columns are... ['Rollno' 'Sex' 'Name' 'Hindi' 'English' 'Maths' 'Science' 'SST' 'IT'
 'Total' 'Percentage' 'Result']
--------------------------------------------------------------------------------
Want to extract column.... press..... '1' other wise press... '0'1
--------------------------------------------------------------------------------
Enter the column Name Rollno
['Rollno']
Want to extract column.... press..... '1' other wise press... '0'1
--------------------------------------------------------------------------------
Enter the column Name Percentage
['Rollno', 'Percentage']
Want to extract column.... press..... '1' other wise press... '0'0
--------------------------------------------------------------------------------
['Rollno', 'Percentage']
--------------------------------------------------------------------------------
     Rollno  Percentage
0  22213861        59.5
1  22213862        89.5
--------------------------------------------------------------------------------
```

Activate Windows
Go to Settings to activate Windows.

If Choice =2: Search Record based on Rollno.

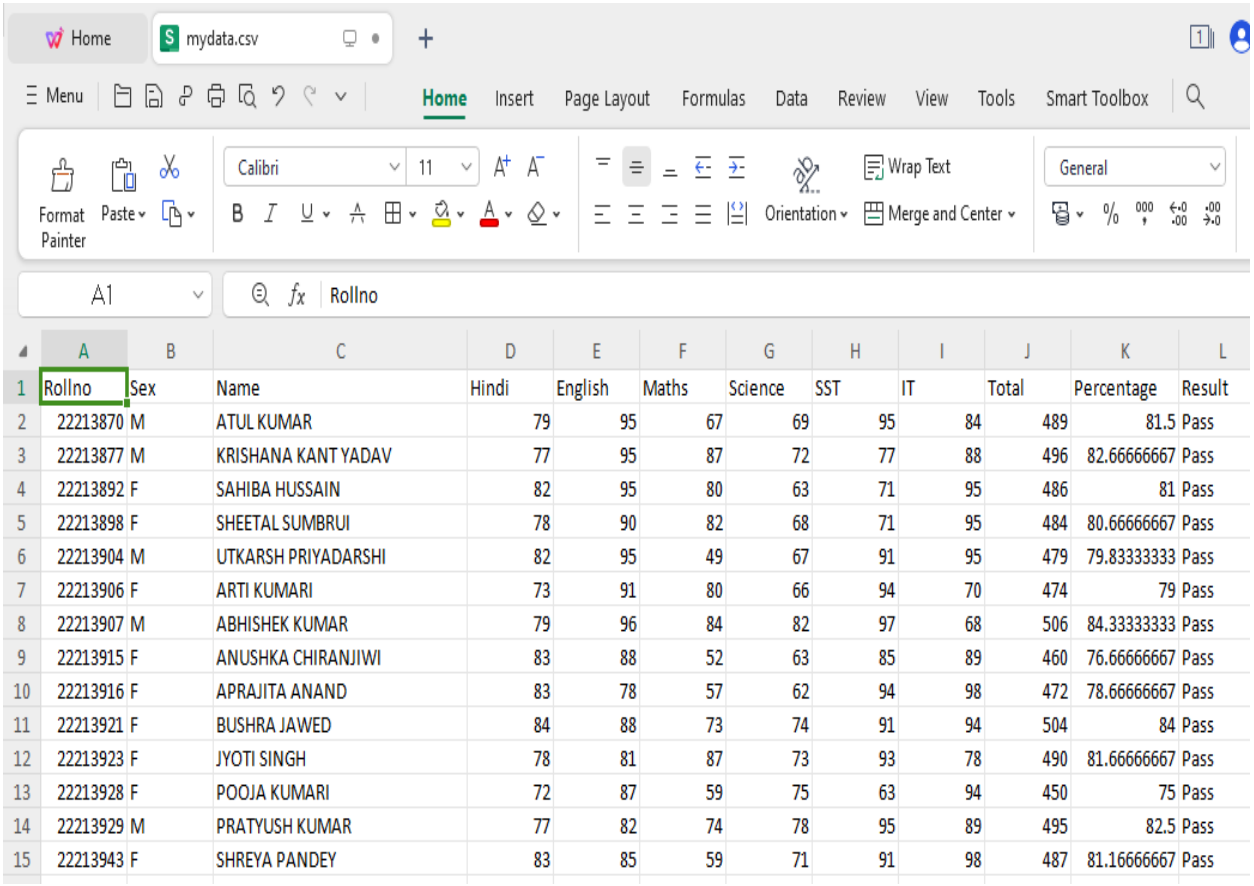
```
Enter Your Choice......2
Enter roll number of Student22213862
Rollno                    22213862
Sex                              M
Name              AARUNI SHANDILYA
Hindi                           84
English                         95
Maths                           86
Science                         87
SST                             92
IT                              93
Total                          537
Percentage                    89.5
Result                        Pass
```

If Choice =3: To Show Bar Graph



If Choice =4: To Create CSV file

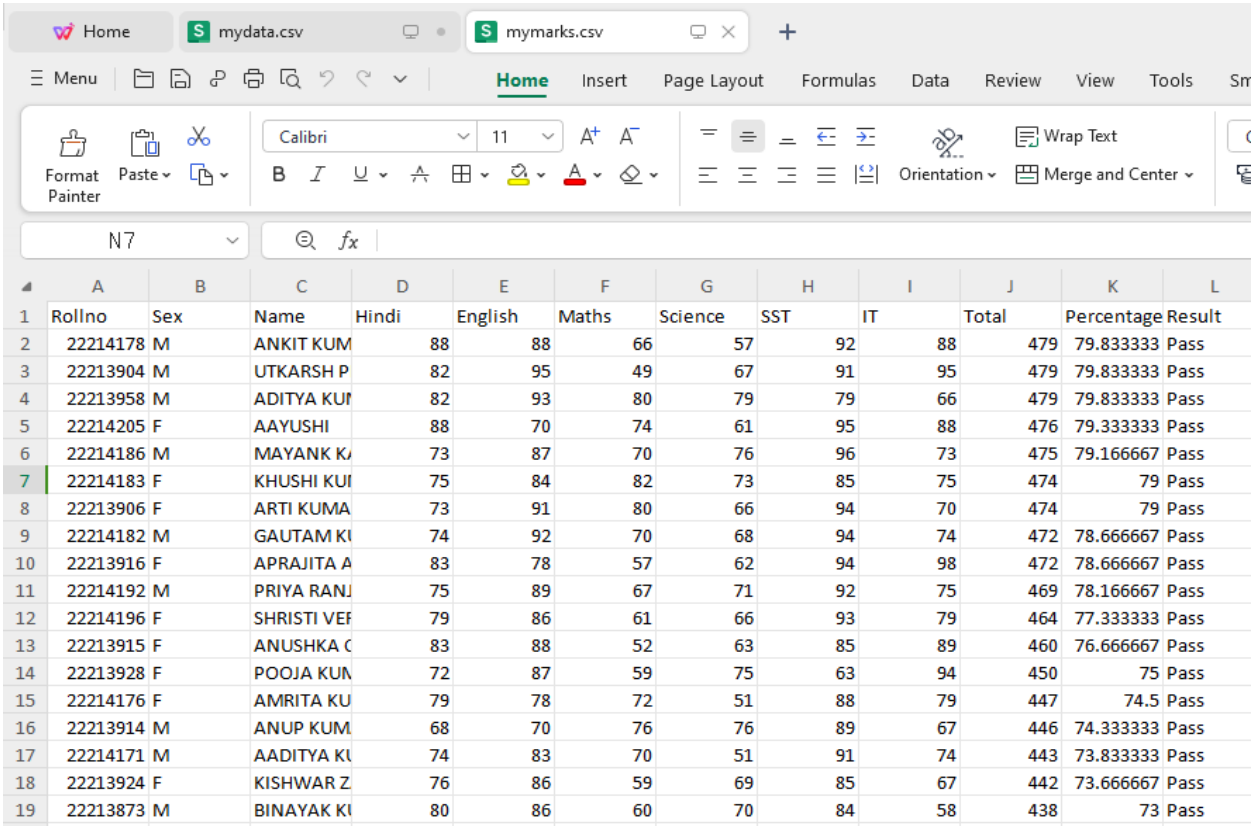
```
Enter Your Choice......4
Enter Range of Percentage to export records into new csv file
Enter starting Percentage75
Enter End Percentage85
Enter Drive Name (like e:\ or d:\ or c:\) e:\
Enter File Namemydata
```



	A	B	C	D	E	F	G	H	I	J	K	L
1	Rollno	Sex	Name	Hindi	English	Maths	Science	SST	IT	Total	Percentage	Result
2	22213870	M	ATUL KUMAR	79	95	67	69	95	84	489	81.5	Pass
3	22213877	M	KRISHANA KANT YADAV	77	95	87	72	77	88	496	82.66666667	Pass
4	22213892	F	SAHIBA HUSSAIN	82	95	80	63	71	95	486	81	Pass
5	22213898	F	SHEETAL SUMBRUI	78	90	82	68	71	95	484	80.66666667	Pass
6	22213904	M	UTKARSH PRIYADARSHI	82	95	49	67	91	95	479	79.83333333	Pass
7	22213906	F	ARTI KUMARI	73	91	80	66	94	70	474	79	Pass
8	22213907	M	ABHISHEK KUMAR	79	96	84	82	97	68	506	84.33333333	Pass
9	22213915	F	ANUSHKA CHIRANJIWI	83	88	52	63	85	89	460	76.66666667	Pass
10	22213916	F	APRAJITA ANAND	83	78	57	62	94	98	472	78.66666667	Pass
11	22213921	F	BUSHRA JAWED	84	88	73	74	91	94	504	84	Pass
12	22213923	F	JYOTI SINGH	78	81	87	73	93	78	490	81.66666667	Pass
13	22213928	F	POOJA KUMARI	72	87	59	75	63	94	450	75	Pass
14	22213929	M	PRATYUSH KUMAR	77	82	74	78	95	89	495	82.5	Pass
15	22213943	F	SHREYA PANDEY	83	85	59	71	91	98	487	81.16666667	Pass

If Choice =5: To Create CSV file (Sorted)

```
Enter Your Choice......5
Enter Range of Percentage to export records into new csv file
Enter starting Percentage60
Enter End Percentage80
Enter Drive Name (like e:\ or d:\ or c:\) e:\
Enter File Namemymarks
Press '1' for ascending otherwise descending1
e:\mymarks.csv
```



Home | mydata.csv | mymarks.csv

Menu | Home | Insert | Page Layout | Formulas | Data | Review | View | Tools

Format Painter | Paste | Calibri | 11 | Wrap Text | Orientation | Merge and Center

N7

	A	B	C	D	E	F	G	H	I	J	K	L
1	Rollno	Sex	Name	Hindi	English	Maths	Science	SST	IT	Total	Percentage	Result
2	22214178	M	ANKIT KUM	88	88	66	57	92	88	479	79.833333	Pass
3	22213904	M	UTKARSH P	82	95	49	67	91	95	479	79.833333	Pass
4	22213958	M	ADITYA KUI	82	93	80	79	79	66	479	79.833333	Pass
5	22214205	F	AAYUSHI	88	70	74	61	95	88	476	79.333333	Pass
6	22214186	M	MAYANK KA	73	87	70	76	96	73	475	79.166667	Pass
7	22214183	F	KHUSHI KUI	75	84	82	73	85	75	474	79	Pass
8	22213906	F	ARTI KUMA	73	91	80	66	94	70	474	79	Pass
9	22214182	M	GAUTAM KU	74	92	70	68	94	74	472	78.666667	Pass
10	22213916	F	APRAJITA A	83	78	57	62	94	98	472	78.666667	Pass
11	22214192	M	PRIYA RANJ	75	89	67	71	92	75	469	78.166667	Pass
12	22214196	F	SHRISTI VEI	79	86	61	66	93	79	464	77.333333	Pass
13	22213915	F	ANUSHKA C	83	88	52	63	85	89	460	76.666667	Pass
14	22213928	F	POOJA KUN	72	87	59	75	63	94	450	75	Pass
15	22214176	F	AMRITA KU	79	78	72	51	88	79	447	74.5	Pass
16	22213914	M	ANUP KUM	68	70	76	76	89	67	446	74.333333	Pass
17	22214171	M	AADITYA KU	74	83	70	51	91	74	443	73.833333	Pass
18	22213924	F	KISHWAR Z	76	86	59	69	85	67	442	73.666667	Pass
19	22213873	M	BINAYAK KU	80	86	60	70	84	58	438	73	Pass

If Choice =6: To Search Record based on NaN

```
Enter Your Choice......6
****************************************
       Rollno       Name  Hindi  English  Maths    IT
51    22213912  AMAN RAJAK   59.0     71.0   45.0  97.0
144  222142010        NaN    NaN      NaN    NaN   NaN
       Rollno  Sex       Name  Hindi  ...    IT  Total  Percentage  Result
51    22213912    M  AMAN RAJAK   59.0  ...  97.0  374.0   62.333333    Pass
144  222142010  NaN        NaN    NaN  ...   NaN    NaN         NaN     NaN
```

8. Bibliography

In order to work on this project titled –Fee ***Management System*** the following Details of Fee material are refered by me during the various phases of development of the project.

(1) **http://www.mysql.org/**

(2) **http://www.python.org/**

(3) On-line Help of python

(4) Informatics Practices for class XII

-by Sumita Arora

(5) Various Websites of Discussion Forum and software development activities.

Other than the above-mentioned books, the suggestions and supervision of my teacher and my class experience also helped me to develop this software project.