

Project Report on

SCHOOL MANAGEMENT SYSTEM

Submitted by

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Class-XII (2024-25)

Under the Guidance of

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D E C L A R A T I O N

I hereby declare that the project work entitled
'SCHOOL MANAGEMENT SYSTEM', submitted to **MR.**
NEERAJ JAIRATH (P.G.T.-COMPUTER SCIENCE), Shri Guru
Ram Rai Public School, Deoband is presented by me. All
the coding are result of my personal effort.



CERTIFICATE

This is certify that _____, a student of Class-XII-A
is successfully completed the project '**SCHOOL MANAGEMENT
SYSTEM**' during the academic year (2024-25) in partial
fulfilment of **COMPUTER SCIENCE (083) PRACTICAL
EXAMINATION** conducted by Central Board of Secondary
Education.

.....

Internal Examiner:-

.....

External Examiner:-

.....

Principal:-

ACKNOWLEDGMENT

In the accomplishment of this project successfully, many people have bestowed upon me their blessings and the heart pledge support.

- Primarily I would thank **God** for being able to complete this project success.
- Then I would like to thank my **Principal Mr. Vijay Gupta and Computer Science Teacher Mr. Neeraj Jairath** who provide me valuable guidance to make this project successful.
- I also thanks to my **parents** for their motivation & support.

Class XII-A

(2024-25)

SYSTEM REQUIREMENT

1. Hardware Requirement :-

- a. Processor – A modern processor (i3, i5, i7 or high) with at least 1 GHz clock speed.
- b. Memory (RAM) – At least 2 GB
- c. Disk Space – 20 GB space is recommended

2. Software Requirement:-

- a. Operating System – Windows 10
- b. Python – Version-3.11
- c. MySQL – 5.5 or high
- d. MySQL connector must be installed in python

Database & Table Creation in MySQL

```
mysql> use school;  
Database changed
```

```
mysql> create table staff  
-> (  
-> Teacher_ID int primary key,  
-> Name char (20),  
-> Father char (10),  
-> Post char (4),  
-> Subject char (10),  
-> G_Salary int,  
-> PF int,  
-> N_Salary int  
-> );
```

Query OK, 0 rows affected (0.05 sec)

```
mysql>
```

```
mysql> desc staff;
```

Field	Type	Null	Key	Default	Extra
Teacher_ID	int	NO	PRI	NULL	
Name	char(20)	YES		NULL	
Father	char(10)	YES		NULL	
Post	char(4)	YES		NULL	
Subject	char(10)	YES		NULL	
G_Salary	int	YES		NULL	
PF	int	YES		NULL	
N_Salary	int	YES		NULL	

8 rows in set (0.01 sec)

```
mysql> create table student
```

```
-> (  
-> S_ID int primary key,  
-> Name char (20),  
-> Father char (10),  
-> Mother char (8),  
-> Class char (3),  
-> Stream char (4),  
-> A_Ch int,  
-> T_Fee int,  
-> Comp int,  
-> Total int  
-> );
```

```
Query OK, 0 rows affected (0.04 sec)
```

```
mysql> desc student;
```

Field	Type	Null	Key	Default	Extra
S_ID	int	NO	PRI	NULL	
Name	char(20)	YES		NULL	
Father	char(10)	YES		NULL	
Mother	char(8)	YES		NULL	
Class	char(3)	YES		NULL	
Stream	char(4)	YES		NULL	
A_Ch	int	YES		NULL	
T_Fee	int	YES		NULL	
Comp	int	YES		NULL	
Total	int	YES		NULL	

```
10 rows in set (0.01 sec)
```

```
mysql>
```


SOURCE CODE

(PYTHON CODING)

Database & Table Creation in MySQL

```
mysql> create database StudentManagement;  
Query OK, 1 row affected (0.06 sec)
```

```
mysql> use StudentManagement;  
Database changed
```

```
mysql> create table student  
-> (  
-> S_ID int primary Key,  
-> Name char (20),  
-> Father char (15),  
-> Class int,  
-> Ad_Fee int,  
-> Term_I_Fee int,  
-> Term_II_Fee int,  
-> Total int  
-> );  
Query OK, 0 rows affected (0.17 sec)
```

```
mysql> desc student;
```

Field	Type	Null	Key	Default	Extra
S_ID	int	NO	PRI	NULL	
Name	char(20)	YES		NULL	
Father	char(15)	YES		NULL	
Class	int	YES		NULL	
Ad_Fee	int	YES		NULL	
Term_I_Fee	int	YES		NULL	
Term_II_Fee	int	YES		NULL	
Total	int	YES		NULL	

```
8 rows in set (0.06 sec)
```

SOURCE CODE

(PYTHON CODING)

```
import mysql.connector as c
# Here we are importing a module - 'mysql.connector' for the use of 'connect'
function for making connection between Python and MySQL.
# We gave a alias 'c' to this module (mysql.connector) name.

from tabulate import tabulate
# Here we are importing a module - 'tabulate' for showing the data of table as a
stylish tables.
# Because we used 'from' statement so we can use of only one function of this
module

import datetime as d
# Here we are importing a module - 'datetime' and gave alias d

con=c.connect(host='localhost',user='root',passwd='1234',database='school')
# Here we make a connection between Python and MySQL
# Where 'con' is a connection object (any name)
# 'c' is alias of module - 'mysql.connector'
# and 'connect()' is a function of module mysql.connector. It returns connection
object

if con.is_connected():
# is_connected is a function of module - mysql.connector.
# This function is used with 'connection object' and here connection object name
is 'con'

    print("\n")
    print("\t\t\tPYTHON-SQL-CONNECTIVITY BASED PROJECT")
else:
    print("Error")
```


#TEACHER MENU -----

def displayTeachers():

This function is created for DISPLAY the record of all teachers of table - 'staff'

```
print("\n\n")
print(" .....")
print("-----* ALL STAFF LIST * -----")
print(" .....")
print("\n\n")
cur=con.cursor()
```

Here cursor() is a function of module 'mysql.connector' and 'con' is a connection object and 'cur' is cursor object.

This cursor object 'cur' (any name) is used for execute other function as execute(), fetch() etc.

cursor function is call with connection object and make cursor object.

```
cur.execute("select * from staff")
```

Here execute() is a function. It is used with cursor object

execute () function is used to execute an query on data.

We can write above statement like following way also -

```
q="select * from staff
```

```
# cur=execute(q)
```

Here q is any variable name

```
data=cur.fetchall()
```

fetchall() function is used to take the data from connected table with the help of cursor object

and store in a variable

```
h=['Teacher_ID','Name','Father','Post','Subject','G_Salary','PF','N_Salary']
```

Here h is a list variable. This list is created for making headings of tuple.

NOTE - Here we can use space also like this.

```
# h=['Teacher ID','Name','Father','Post','Subject','Gross Salary','PF','Net Salary']
```

```
print(tabulate(data,headers=h,tablefmt='psql'))
```

fetch() function take data from connected table but it displays data in the form of tuple

so if we want to display these tuple in the form of table, then we can use of tabulate() function

Syntax - tabulate(variable where fetch data is stored, headers=list variable in which heading stored, tablefmt=' ')

tablefmt may be psql, plain, grid, pretty, fancy_grid, pipe, jira etc

```

print("\n")
print("Total Number of Records = ",cur.rowcount)
# rowcount is not a function.
# It returns the number of affected row or tuple by the last statement
# It can be used by cursor object
print("\n\n")

```

def displayPGT():

This function is created for DISPLAY the record of only PGTs teachers of table - 'staff'

```

print("\n\n")
print(" ..... ")
print("-----* LIST OF PGTs * -----")
print(" ..... ")
print("\n\n")
cur=con.cursor()
cur.execute("select * from staff where post = 'PGT'")
data=cur.fetchall()
h=['Teacher_ID','Name','Father','Post','Subject','G_Salary','PF','N_Salary']
print(tabulate(data,headers=h,tablefmt='psql'))
print("\n")
print("Total PGT Teachers = ",cur.rowcount)
print("\n\n")

```

def displayTGT():

This function is created for DISPLAY the record of only TGT's teachers of table - 'staff'

```

print("\n\n")
print(" ..... ")
print("-----* LIST OF PGTs * -----")
print(" ..... ")
print("\n\n")
cur=con.cursor()
cur.execute("select * from staff where post = 'TGT'")
data=cur.fetchall()
h=['Teacher_ID','Name','Father','Post','Subject','G_Salary','PF','N_Salary']
print(tabulate(data,headers=h,tablefmt='psql'))
print("\n")
print("Total TGT Teachers = ",cur.rowcount)
print("\n\n")

```

def insertTeacher():

#This function is used to insert or add a new teacher record in Table - staff

```
print("\n\n")
print(" ..... ")
print("-----* INSERT NEW STAFF * -----")
print(" ..... ")
print("\n\n")
cur=con.cursor()
ti=int(input("Enter Teacher_ID = "))
tn=input("Enter Teacher Name = ")
tf=input("Enter Teacher's Father = ")
td=input("Enter Teacher Designation = ")
ts=input("Enter Teaching Subject = ")
gs=int(input("Enter Gross Salary = "))
pf=gs*.15
ns=gs-pf
query="insert into staff
values(%s,'%s','%s','%s','%s',%s,%s,%s)"%(ti,tn,tf,td,ts,gs,pf,ns)
# OR query="insert into staff({},'{}','{}','{}','{}',{},{},{})".format(ti,tn,tf,td,ts,gs,pf,ns)
# Above line is an example of parameterized query
# This is used when we want to insert some new data in connected table or want
# to change some data of connected table.
# For this we have to need a variable for each field of the connected table
# First method - "required_query (%s,'%s')"% (variable for integer type, variable
# for varchar type)
# Second method - "required_query ({},'{}')".format(variable for integer type,
# variable for varchar type)

cur.execute(query)
con.commit()
# commit() is function of module mysql.connector
# It is used to save the data of a table after apply various commands as INSERT,
UPDATE, DELETE etc.
print("\n")
print("Teacher-Data inserted successfully ..... ")
```

def updateTeacher():

#This function is used to change the value or update data in the table - staff

```
print("\n\n")
print(" ..... ")
print("-----* UPDATE TEACHER RECORD *-----")
print(" ..... ")
print("\n\n")
cur=con.cursor()
ti=int(input("Enter Teacher_ID for update the record = "))
print("-----")
tn=input("Enter Teacher Name = ")
tf=input("Enter Teacher's Father = ")
td=input("Enter Teacher Designation = ")
ts=input("Enter Teaching Subject = ")
gs=int(input("Enter Gross Salary = "))
pf=gs*.15
ns=gs-pf
query="update staff set
Name='%s',Father='%s',Designation='%s',Subject='%s',Gross_Salary=%s,PF=%s,Net_Salary=%s where Teacher_ID=%s\"
% (tn,tf,td,ts,gs,pf,ns,ti)

cur.execute(query)
con.commit()
print("\n\n")
print("Teacher-Data updated successfully..... ")
```

def searchTID():

#This function is used to search or find a record of table - staff.

```
print("\n\n")
print(" ..... ")
print("-----* SEARCH BY - TEACHER-ID * -----")
print(" ..... ")
print("\n\n")
cur=con.cursor()
ti=int(input("Enter Teacher-ID for searching = "))
print("-----")
query="Select * from staff where Teacher_ID = %s" % (ti,)
cur.execute(query)
```


def displayStu_11() :

**#This function is created for display the list of only students of class-XI from table
- 'student'**

```
print("\n\n")
print(" ..... ")
print("-----* LIST OF CLASS-XI * -----")
print(" ..... ")
print("\n\n")
cur=con.cursor()
cur.execute("select * from student where class = 11")
data=cur.fetchall()
h=['S_ID','Name','Father','Mother','Class','Stream','A_Ch','T_Fee','Comp','Total']
print(tabulate(data,headers=h,tablefmt='psql'))
print("\n")
print("Total Number of Students = ",cur.rowcount)
print("\n\n")
```

def displayStu_12() :

**#This function is created for display the list of only students of class-XII from table
- 'student'**

```
print("\n\n")
print(" ..... ")
print("-----* LIST OF CLASS-XII * -----")
print(" ..... ")
print("\n\n")
cur=con.cursor()
cur.execute("select * from student where class = 12")
data=cur.fetchall()
h=['S_ID','Name','Father','Mother','Class','Stream','A_Ch','T_Fee','Comp','Total']
print(tabulate(data,headers=h,tablefmt='psql'))
print("\n")
print("Total Number of Students = ",cur.rowcount)
print("\n\n")
```

def insertStudent():

#This function is created for insert or add new record in table - 'student'

```
print("\n\n")
print(" ..... ")
print("-----* INSERT NEW STUDENT * -----")
print(" ..... ")
print("\n\n")
cur=con.cursor()
si=int(input("Enter Student_ID = "))
sn=input("Enter Student Name = ")
sf=input("Enter Father's Name = ")
sm=input("Enter Mother's Name = ")
cl=input("Enter Class = ")
st=input("Enter Stream = ")
ac=int(input("Enter Annual Charge = "))
tf=int(input("Enter Tution Fee = "))
cf=int(input("Enter Computer Fee = "))

tot=ac+tf+cf
query="insert into student
values(%s,'%s','%s','%s','%s','%s','%s','%s','%s','%s')%(si,sn,sf,sm,cl,st,ac,tf,cf,tot)
cur.execute(query)
con.commit()
print("\n\n")
print("Record of new student has inserted successfully ..... ")
```

def updateStudent():

#This function is created for update or modify a record of table - 'student'

```
print("\n\n")
print(" ..... ")
print("-----* UPDATE STUDENT RECORD * -----")
print(" ..... ")
print("\n\n")
cur=con.cursor()
si=int(input("Enter Student_ID for update the record = "))
print("-----")

print("Previous Record of Student-ID No.-",si,"is -->")
```

```

query="Select * from student where S_ID = %s" % (si,)
cur.execute(query)
data=cur.fetchall()
h=['S_ID','Name','Father','Mother','Class','Stream','A_Ch','T_Fee','Comp','Total']
print(tabulate(data,headers=h,tablefmt='psql'))
print("\n")
print("Please enter updated data .....")
print("\n")
sn=input("Enter Student Name = ")
sf=input("Enter Father's Name = ")
sm=input("Enter Mother's Name = ")
cl=input("Enter Class = ")
st=input("Enter Stream = ")
ac=int(input("Enter Annual Charge = "))
tf=int(input("Enter Tution Fee = "))
cf=int(input("Enter Computer Fee = "))
tot=ac+tf+cf

query="update student set
Name='%s',Father='%s',Mother='%s',Class='%s',Stream='%s',A_Ch=%s,T_Fee=%s,
Comp=%s,Total=%s where S_ID=%s"\
    % (sn,sf,sm,cl,st,ac,tf,cf,tot,si)
cur.execute(query)
con.commit()
print("\n")
print("Student Record has updated successfully..... ")

```

def searchStudent():

#This function is created for search or find record in table - 'student'

```

print("\n\n")
print(" ..... ")
print("-----* SEARCH STUDENT * -----")
print(" ..... ")
print("\n\n")
cur=con.cursor()
si=int(input("Enter Student-ID for searching = "))
print("-----")
query="Select * from student where S_ID = %s" % (si,)
cur.execute(query)

```

```

data=cur.fetchall()
h=['S_ID','Name','Father','Mother','Class','Stream','A_Ch','T_Fee','Comp','Total']
print(tabulate(data,headers=h,tablefmt='psql'))
print("\n")
print("Total Records = ",cur.rowcount)

```

def feeSlip():

This function is used to display the Fee Slip of a student. (For this we need of Student-ID).

```

cur=con.cursor()
si=int(input("Enter Student ID for Fee Slip = "))
print("\n\n")
print(" .....")
print("          ALL INDIA PUBLIC SCHOOL")
print("-----* FEE SLIP * -----")
print(" .....")
print("\n\n")

print("Current Date & Time:-",end=' ')
print(d.datetime.now().strftime('%d-%m-%y & %H:%M:%S'))
print("\n")
query="Select * from student where S_ID=%s" % (si,)
cur.execute(query)
data=cur.fetchall()
h=['S_ID','Name','Father','Mother','Class','Stream','A_Ch','T_Fee','Comp','Total']
print(tabulate(data,headers=h,tablefmt='psql'))

print("\n\n")
print(" .....")
print("-----* ***** * -----")
print(" .....")
print("\n\n\n\n")

```

def delete():

This function is used to delete a record of table - student. (For this we need of student_ID).

```
print("\n\n")
print(" .....")
print("-----* DELETE STUDENT DATA *-----")
print(" .....")
print("\n\n")
cur=con.cursor()
ti=int(input("Enter Student-ID for delete the record of student = "))
query="delete from student where S_ID=%s" % (ti,)
ch=input("Do you want to delete this student's record(y/n) : ")
if ch=='y' or ch=='Y':
    cur.execute(query)
    con.commit()
    print("\nStudent deleted successfully..... ")
else:
    print("\n      O.K ..... be aware for deletion .....!")
```

while True:

This loop will continue (true) untill the break statement executes
Means if user press 1 or 1a or 1b or 1c or 2 or 3 or 4 or 4a or 4b or 5 or 6 or 7
then menu() function execute
And if user press any other key then loop will be terminated and apply break
menu()

```
choice=input("Select any option according to your choice : ")
print("***90")
if choice == '1':
    displayTeachers()
elif choice == '1a':
    displayPGT()
elif choice == '1b':
    displayTGT()
elif choice == '2':
    insertTeacher()
elif choice == '3':
    updateTeacher()
elif choice == '4':
```


OUTPUT

Main Menu

```
PYTHON-SQL-CONNECTIVITY BASED PROJECT
CLASS-XII (2023-24)
SUBJECT - COMPUTER SCIENCE (083)
*****
S C H O L L   M A N A G E M E N T   S Y S T E M
*****
M E N U :-
=====

T E A C H E R S   R E C O R D
=====

1.  Display Teachers
    1a.  Display PGTs
    1b.  Display TGTs
2.  Add New Teacher
3.  Update Teacher
4.  Search Teacher

S T U D E N T S   R E C O R D
=====

5.  Display Students
    5a.  Display All
    5b.  Display Class-XI
    5c.  Display Class-XII
6.  Add New Student
7.  Update Student
8.  Search Student
9.  Fee Slip
10. Delete Student
11. Exit
*****
Select any option according to your choice :
```

Display Teachers Menu

```
*****
Select any option according to your choice : 1
*****
```

```
.....
-----* ALL STAFF LIST *-----
.....
```

Teacher_ID	Name	Father	Post	Subject	G_Salary	PF	N_Salary
1	Amar Singh	P.R.	PGT	Physics	45500	6825	38675
2	Pulkit Raj	F.T.	TGT	Chemistry	25000	3750	21250
3	Parul Singh	N.R.	TGT	Science	18750	2813	15938
4	Parasmani	V.P.	PGT	Biology	38800	5820	32980
5	Ambar Raj	T.K.	PGT	C.S.	48800	7320	41480

```
Total Number of Records = 5
```

Display PGTs Menu

```
*****
Select any option according to your choice : 1a
*****

.....
-----* LIST OF PGTs *-----
.....

+-----+-----+-----+-----+-----+-----+-----+
| Teacher_ID | Name       | Father | Post  | Subject | G_Salary | PF  | N_Salary |
+-----+-----+-----+-----+-----+-----+-----+
|      1     | Amar Singh | P.R.   | PGT   | Physics | 45500    | 6825 | 38675    |
|      4     | Parasmani  | V.P.   | PGT   | Biology | 38800    | 5820 | 32980    |
|      5     | Ambar Raj  | T.K.   | PGT   | C.S.    | 48800    | 7320 | 41480    |
+-----+-----+-----+-----+-----+-----+-----+

Total PGT Teachers = 3
```

Display TGTs Menu

```
*****
Select any option according to your choice : 1b
*****

.....
-----* LIST OF PGTs *-----
.....

+-----+-----+-----+-----+-----+-----+-----+
| Teacher_ID | Name       | Father | Post  | Subject | G_Salary | PF  | N_Salary |
+-----+-----+-----+-----+-----+-----+-----+
|      2     | Pulkit Raj | F.T.   | TGT   | Chemistry | 25000    | 3750 | 21250    |
|      3     | Parul Singh | N.R.   | TGT   | Science  | 18750    | 2813 | 15938    |
+-----+-----+-----+-----+-----+-----+-----+

Total TGT Teachers = 2
```


Add New Teacher Menu

```
117  EXIT
*****
Select any option according to your choice : 2
*****

-----* INSERT NEW STAFF *-----

Enter Teacher_ID = 6
Enter Teacher Name = Veena Mehta
Enter Teacher's Father = P.K.
Enter Teacher Designation = PGT
Enter Teaching Subject = Acct.
Enter Gross Salary = 45850

Teacher-Data inserted successfully.....
```

Search Teacher Menu

```
*****
Select any option according to your choice : 4
*****

-----* SEARCH BY - TEACHER-ID *-----

Enter Teacher-ID for searching = 5
-----
+-----+-----+-----+-----+-----+-----+-----+
| Teacher_ID | Name      | Father  | Post  | Subject | G_Salary | PF  | N_Salary |
+-----+-----+-----+-----+-----+-----+-----+
|          5 | Ambar Raj | T.K.    | PGT   | C.S.    |    48800 | 7320 |    41480 |
+-----+-----+-----+-----+-----+-----+-----+
```

Display Students Menu

```
11. Exit
*****
Select any option according to your choice : 5
*****

.....
-----* DISPLAY STUDENTS *-----
.....

What do you want to display -->
Press 5a ..... All Student
Press 5b ..... Class-XI
Press 5c ..... Class-XII
```

Display All Students Menu

```
11. Exit
*****
Select any option according to your choice : 5a
*****

.....
-----* LIST OF ALL STUDENTS *-----
.....

+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| S_ID | Name   | Father | Mother | Class | Stream | A_Ch | T_Fee | Comp | Total |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 101 | Charu Mittal | D.S.   | Kriti  | 11    | PCB    | 11000 | 24000 | 24000 | 59000 |
| 102 | Raja      | R.P.   | Teena  | 12    | PCM    | 18000 | 28000 | 6000  | 52000 |
| 103 | Goldy     | G.L.   | Riya   | 12    | PCB    | 18000 | 28000 | 6000  | 52000 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+

Total Number of Students = 3
```

Search Student Menu

Select any option according to your choice : 8

-----* SEARCH STUDENT *-----

Enter Student-ID for searching = 102

S_ID	Name	Father	Mother	Class	Stream	A_Ch	T_Fee	Comp	Total
102	Raja	R.P.	Teena	12	PCM	18000	28000	6000	52000

Total Records = 1

Fee Slip Menu

Select any option according to your choice : 9

Enter Student ID for Fee Slip = 103

A L L I N D I A P U B L I C S C H O O L

-----* FEE SLIP *-----

Current Date & Time:-

10-01-23 & 18:37:34

S_ID	Name	Father	Mother	Class	Stream	A_Ch	T_Fee	Comp	Total
103	Goldy	G.L.	Riya	12	PCB	18000	28000	6000	52000

-----* ***** *-----

Delete Student Menu

```
*****
Select any option according to your choice : 10
*****
```

```
.....
-----* DELETE STUDENT DATA *-----
.....
```

```
Enter Student-ID for delete the record of student = 103
Do you want to delete this student's record(y/n) : n
```

```
O.K ..... be aware for deletion.....!
```

Exit Menu

```
=====
T H A N K   Y O U !!!! for using our School Management System
H A V E   A   N I C E   D A Y !
=====
```

REFERENCES

- Python Class-XI Book
- Python Class-XII Book
- Python.org
- Google etc
- Under the guidance of subject teacher

Thank you!