Library Management System Project Using Python

Submitted By :-

Mohit Gupta, XII A

INDEX

- CERTIFICATE
- ACKNOWLEGEMENT
- ABSTRACT
- DATABASE STRUCTURE
- PYTHON SOURCE CODE
- TEST QUERIES

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CERTIFICATE

This is to certify that _Mohit Gupta_ student of Class-XII A have successfully completed the project of _Library System Management_ under the guidance _of Mrs Mohini Batra_ during the year _2020-2021_ as per the guidelines issues by the central board of secondary education – CBSE.

Mrs Mohini

(PGT CS)

External

Examiner

ACKNOWLEDGEMENT

I would like to express my special thanks of gratitude to my teacher _Mrs Mohini_ as well as our principal _Mrs Pallavi Sharma_ who gave us the golden opportunity to do this wonderful project on the topic _Library Management System,_ which also helped me in doing a lot of Research and i came to know about so many new things. I am really thankful to them.

Secondly i would also like to thank my parents and friends who helped me a lot in finalizing this project within the limited time frame.

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ABSTRACT

Library management system is a project which aims in developing a computerized system to maintain all the daily work of library .This project has many features which are generally not available in normal library management systems like facility of student login and a facility of teachers login .It also has a facility of admin login through which the admin can monitor the whole system.

It has a facility where teacher/student after logging in their accounts can see list of books issued and its issue date and return date and fine they have to pay(if any).

The librarian after logging into his account i.e admin account can track the details of books available,details of students/teachers who have issued the books,their return date and issuing date and he can calculate the fine on each book issued by students/teachers.

Overall this project of ours is being developed to help the students, teachers and staff of library to maintain the library in the best way possible and also reduce the human efforts

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DATABASE STRUCTURE

```
mysql> desc student;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| id             | int(11)     | NO   | PRI | NULL    |       |
| name           | varchar(20) | YES  |     | NULL    |       |
| issued_bookname| varchar(30) | YES  |     | NULL    |       |
| issuing_date   | date        | YES  |     | NULL    |       |
| returning_date | date        | YES  |     | NULL    |       |
| fine           | int(11)     | YES  |     | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
6 rows in set (0.06 sec)

mysql> desc teacher;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| id             | int(11)     | NO   | PRI | NULL    |       |
| name           | varchar(30) | YES  |     | NULL    |       |
| issued_bookname| varchar(30) | YES  |     | NULL    |       |
| issuing_date   | date        | YES  |     | NULL    |       |
| returning_date | date        | YES  |     | NULL    |       |
| fine           | int(11)     | YES  |     | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)

mysql> desc books;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| book_id   | int(11)     | NO   | PRI | NULL    |       |
| book_name | varchar(30) | YES  |     | NULL    |       |
| publisher | varchar(30) | YES  |     | NULL    |       |
| book_type | varchar(30) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

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PYTHON SOURCE CODE

```python
import mysql.connector as ms

mycon=ms.connect(host='localhost',user='root',passwd='20031998',database='library')

mycursor=mycon.cursor()


#Student/Teacher functions:


def Issue():

    print('**WELCOME TO THE BOOKS ISSUING WINDOW**')

    print('Enter the details of the %s who wants to issue books '%(c))

    sid=int(input('Enter %s id '%(c)))

    sn=input('Enter %s name '%(c))

    bn=input('Enter the name of issued book ')

    query="insert into {} values({},'{}','{}',curdate(),null,null)".format(c,sid,sn,bn)

    mycursor.execute(query)

    mycon.commit()



def Return():

    print('**WELCOME TO THE BOOKS RETURNING WINDOW**')

    print('Enter the details of the %s who wants to return books: '%(c))

    sid=int(input('Enter %s id '%(c)))

    print('*AMOUNT OF FINE IS 2RS/DAY IF NOT SUBMITTED WITHIN 2 WEEKS*')
```

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```python
    mycursor.execute('select datediff(curdate(),issuing_date) from %s where
id=%s'%(c,sid,))

    n=mycursor.fetchone()

    fine=n[0]*2

    mycursor.execute('update %s set returning_date=curdate() where id=%s;'%(c,sid,))

    mycursor.execute('update %s set fine=%s where id=%s;'%(c,fine,sid))

    mycon.commit()

    if n[0]>14:

        print('*AMOUNT OF FINE NEEDED TO BE SUBMITTED IS*',fine*2)

    else:

        print('*AMOUNT OF FINE NEEDED TO BE SUBMITTED IS 0*')


def Update():

    print ('**WELCOME TO THE %s UPDATE WINDOW**'%(c))

    a=int(input('Enter the id of the %s whose record you want to update '%(c)))

    mycursor.execute('select * from %s where id=%s;'%(c,a,))

    data=mycursor.fetchone()

    if data==None:

        print('**RECORD NOT FOUND**')

        return
```

```python
    else:
        print('-'*91)

print('%10s'%'ID','%15s'%'NAME','%15s'%'ISSUED_BOOKNAME','%15s'%'ISSUING_DATE','%15s'%'RETURNING_DATE','%15s'%'FINE')
        print('-'*91)

print('%10s'%data[0],'%15s'%data[1],'%15s'%data[2],'%15s'%data[3],'%15s'%data[4],'%15s'%data[5])
        print('-'*91)


    b=input('''Which attribute of the record do you want to update?
''')
    c1=input('Enter the new value of %s '%(b,))


    mycursor.execute('update %s set %s="%s" where id=%s;'%(c,b,c1,a))
    print('**RECORD UPDATED**')


def Display():
    id=int(input('Enter %s Id to display all the details of the %s '%(c.capitalize(),c.capitalize())))
    mycursor.execute("select * from %s where id=%s"%(c,id))
    data=mycursor.fetchall()
    if data==[]:
        print('**RECORD NOT FOUND**')
    else:
        print('-'*91)
```

```python
print('%10s'%'ID','%15s'%'NAME','%15s'%'ISSUED_BOOKNAME','%15s'%'ISSUING_DATE
','%15s'%'RETURNING_DATE','%15s'%'FINE')
    print('-'*91)
    for row in data:

print('%10s'%row[0],'%15s'%row[1],'%15s'%row[2],'%15s'%row[3],'%15s'%row[4],'%15
s'%row[5])
    print('-'*91)


#Books Functions:

def Update_b():

  print ('**WELCOME TO THE BOOKS UPDATE WINDOW**')

  a=int(input('Enter the id of the book whose record you want to update '))

  mycursor.execute('select * from books where book_id=%s;'%(a,))
  data=mycursor.fetchone()
  print(data)
  if data==None:
    print('**RECORD NOT FOUND**')
    return
  else:
    print('-'*56)
```

```python
    print('%7s'%'BOOK_ID','%15s'%'BOOK_NAME','%15s'%'PUBLISHER','%15s'%'BOOK_TYPE')
    print('-'*56)
    print('%7s'%data[0],'%15s'%data[1],'%15s'%data[2],'%15s'%data[3])
    print('-'*56)


    b=input('''Which attribute of the record do you want to update?
''')
    c=input('Enter the new value of %s '%(b,))


    mycursor.execute('update books set %s="%s" where book_id=%s;'%(b,c,a))
    mycon.commit()
    print('**RECORD UPDATED**')


def Display_b():
    mycursor.execute("select * from books")
    data=mycursor.fetchall()
    if data==[]:
        print('**RECORDS NOT FOUND**')
        return
    else:
        print('-'*56)


    print('%7s'%'BOOK_ID','%15s'%'BOOK_NAME','%15s'%'PUBLISHER','%15s'%'BOOK_TYPE')
    print('-'*56)
```

```python
    for row in data:
        print('%7s'%row[0],'%15s'%row[1],'%15s'%row[2],'%15s'%row[3])
    print('-'*56)


def Insert_b():
    print('**WELCOME TO THE BOOKS DATA ENTRY**')
    ans='y'
    while ans.lower()=='y':
        bid=int(input('Enter Book id '))
        bn=input('Enter Book name ')
        pn=input('Enter Publisher name ')
        bt=input('Enter Book type ')
        query="insert into books values({0},'{1}','{2}','{3}')".format(bid,bn,pn,bt)
        mycursor.execute(query)
        mycon.commit()
        print('**BOOK SAVED**')
        ans=input("ADD MORE BOOKS? ")


def Delete_b():
    delete='y'
    while delete.lower()=='y':
        bid=int(input('Enter Book id '))
        query="delete from books where book_id=%s;"%(bid,)
        mycursor.execute(query)
        print("**BOOK DELETED**")
        delete=input("DELETE MORE BOOKS? ")
```

```python
def Search_b():

    print('**WELCOME TO BOOK SEARCH WINDOW**')

    a=int(input('enter the id of the book whose record you want to search '))

    mycursor.execute('select * from books where book_id=%s;'%(a,))
    data=mycursor.fetchone()

    if data==None:
        print('**RECORD NOT FOUND**')
        return
    else:
        print('-'*56)
        print('%7s'%'BOOK ID','%15s'%'BOOK NAME','%15s'%'PUBLISHER','%15s'%'BOOK
TYPE')
        print('-'*56)
        print('%7s'%data[0],'%15s'%data[1],'%15s'%data[2],'%15s'%data[3])
        print('-'*56)

import time
time.sleep(0.3)
print('****WELCOME TO THE LIBRARY MANAGEMENT SYSTEM****')

while True:
```

```python
    time.sleep(0.5)

    print(('*')*91)

    print('''#1 for ADMIN LOGIN

#2 for TEACHER LOGIN

#3 for STUDENT LOGIN

#4 for EXIT''')

    print(('*')*91)

    user=int(input('ENTER YOUR CHOICE '))


    if user==1:

        while True:

            time.sleep(0.5)

            print("***WELCOME TO ADMIN'S LOGIN WINDOW***")

            print(('*')*91)

            print('''   #1  for ADDING A BOOK

#2  for DELETING A BOOK

#3  for SEARCHING A BOOK

#4  for UPDATING THE DETAILS OF A BOOK

#5  for UPDATING THE DETAILS OF A STUDENT

#6  for UPDATING THE DETAILS OF A TEACHER

#7  for ISSUING A BOOK FOR STUDENT

#8  for RETURNING A BOOK BY STUDENT

#9  for ISSUING A BOOK FOR TEACHER

#10 for RETURNING A BOOK BY TEACHER

#11 for DISPLAYING BOOKS

#12 for EXIT''')
```

```python
print(('*')*91)

choice=int(input('ENTER YOUR CHOICE  '))

if choice==1:
    Insert_b()
elif choice==2:
    Delete_b()
elif choice==3:
    Search_b()
elif choice==4:
    Update_b()
elif choice==5:
    c='student'
    Update()
elif choice==6:
    c='teacher'
    Update()
elif choice==7:
    c='student'
    ans='y'
    while ans.lower()=='y':
        Issue()
        ans=input('Issue more books? ')
    print('**BOOKS HAVE BEEN ISSUED**')
elif choice==8:
```

```python
        c='student'
        ans='y'
        while ans.lower()=='y':
            Return()
            ans=input('Return more books? ')
        print('**BOOKS HAVE BEEN RETURNED**')
    elif choice==9:
        c='teacher'
        ans='y'
        while ans.lower()=='y':
            Issue()
            ans=input('Issue more books?')
        print('**BOOKS HAVE BEEN ISSUED**')
    elif choice==10:
        c='teacher'
        ans='y'
        while ans.lower()=='y':
            Return()
            ans=input('Return more books? ')
            print('**BOOKS HAVE BEEN RETURNED**')
    elif choice==11:
        Display_b()
    elif choice==12:
        print()
        break
    else:
```

```python
        print('Enter a no between 1 and 12 only')
      print()


elif user==2:
    c='teacher'
    import time
    time.sleep(0.5)
    print('***WELCOME TO TEACHER\'S LOGIN WINDOW***')
    Display()


elif user==3:
    c='student'
    import time
    time.sleep(0.5)
    print('***WELCOME TO STUDENT\'S LOGIN WINDOW***')
    Display()


elif user==4:
    print()
    print('HOPE YOU COME BACK SOON :)')
    break


else:
    print('Enter a number between 1 and 4 only')
```

TEST QUERIES

ADMIN LOGIN:

```
****WELCOME TO THE LIBRARY MANAGEMENT SYSTEM****
*******************************************************************************
#1 for ADMIN LOGIN
#2 for TEACHER LOGIN
#3 for STUDENT LOGIN
#4 for EXIT
*******************************************************************************
ENTER YOUR CHOICE 1
***WELCOME TO ADMIN'S LOGIN WINDOW***
*******************************************************************************
    #1   for ADDING A BOOK
    #2   for DELETING A BOOK
    #3   for SEARCHING A BOOK
    #4   for UPDATING THE DETAILS OF A BOOK
    #5   for UPDATING THE DETAILS OF A STUDENT
    #6   for UPDATING THE DETAILS OF A TEACHER
    #7   for ISSUING A BOOK FOR STUDENT
    #8   for RETURNING A BOOK BY STUDENT
    #9   for ISSUING A BOOK FOR TEACHER
    #10 for RETURNING A BOOK BY TEACHER
    #11 for DISPLAYING BOOKS
    #12 for EXIT
*******************************************************************************
```

#1 ADDING BOOK

```
ENTER YOUR CHOICE  1
**WELCOME TO THE BOOKS DATA ENTRY**|
Enter Book id 2
Enter Book name math
Enter Publisher name ncert
Enter Book type academic
**BOOK SAVED**
ADD MORE BOOKS? y
Enter Book id 3
Enter Book name science
Enter Publisher name ncert
Enter Book type academic
**BOOK SAVED**
ADD MORE BOOKS? n

***WELCOME TO ADMIN'S LOGIN WINDOW***
```

#2 DELETING BOOKS

```
ENTER YOUR CHOICE  2
Enter Book id 2
**BOOK DELETED**
DELETE MORE BOOKS? y
Enter Book id 3
**BOOK DELETED**
DELETE MORE BOOKS? n
```

#3 SEARCHING A BOOK

```
ENTER YOUR CHOICE  3
**WELCOME TO BOOK SEARCH WINDOW**
enter the id of the book whose record you want to search 1
---------------------------------------------------------
BOOK ID         BOOK NAME         PUBLISHER         BOOK TYPE
---------------------------------------------------------
     1               cs              abc                 a
---------------------------------------------------------
```

#4 UPDATING THE DETAILS OF A BOOK

```
ENTER YOUR CHOICE  4
**WELCOME TO THE BOOKS UPDATE WINDOW**
Enter the id of the book whose record you want to update 1
(1, 'cs', 'abc', 'a')
---------------------------------------------------------
BOOK_ID         BOOK_NAME         PUBLISHER         BOOK_TYPE
---------------------------------------------------------
     1               cs              abc                 a
---------------------------------------------------------
Which attribute of the record do you want to update?
book_type
Enter the new value of book_type academic
**RECORD UPDATED**
```

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#5 UPDATING THE DETAILS OF A STUDENT

```
ENTER YOUR CHOICE  5
**WELCOME TO THE student UPDATE WINDOW**
Enter the id of the student whose record you want to update 1
-----------------------------------------------------------------------------------
       ID           NAME ISSUED_BOOKNAME    ISSUING_DATE  RETURNING_DATE         FINE
-----------------------------------------------------------------------------------
        1            mg              cs        2020-12-01      2020-12-01            0
-----------------------------------------------------------------------------------
Which attribute of the record do you want to update?
issued_bookname
Enter the new value of issued_bookname eng
**RECORD UPDATED**
```

#6 UPDATING THE DETAILS OF A TEACHER

```
ENTER YOUR CHOICE  6
**WELCOME TO THE teacher UPDATE WINDOW**
Enter the id of the teacher whose record you want to update 1
-----------------------------------------------------------------------------------
       ID           NAME ISSUED_BOOKNAME    ISSUING_DATE  RETURNING_DATE         FINE
-----------------------------------------------------------------------------------
        1            mh            math        2020-12-01      2020-12-01            0
-----------------------------------------------------------------------------------
Which attribute of the record do you want to update?
name
Enter the new value of name aradh
**RECORD UPDATED**
```

#7 ISSUING A BOOK (STUDENT)

```
ENTER YOUR CHOICE  7
**WELCOME TO THE BOOKS ISSUING WINDOW**
Enter the details of the student who wants to issue books
Enter student id 5
Enter student name aksh
Enter the name of issued book gullivers travels
Issue more books? n
**BOOKS HAVE BEEN ISSUED**
```

#8 RETURNING A BOOK (STUDENT)

```
ENTER YOUR CHOICE   8
**WELCOME TO THE BOOKS RETURNING WINDOW**
Enter the details of the student who wants to return books:
Enter student id 4
*AMOUNT OF FINE IS 2RS/DAY IF NOT SUBMITTED WITHIN 2 WEEK*
*AMOUNT OF FINE NEEDED TO BE SUBMITTED IS 0*
Return more books? N
**BOOKS HAVE BEEN RETURNED**
```

#9 ISSUING A BOOK (TEACHER)

```
ENTER YOUR CHOICE   9
**WELCOME TO THE BOOKS ISSUING WINDOW**
Enter the details of the teacher who wants to issue books
Enter teacher id 3
Enter teacher name aastha
Enter the name of issued book social science
Issue more books?n
**BOOKS HAVE BEEN ISSUED**
```

#10 RETURNING A BOOK (TEACHER)

```
ENTER YOUR CHOICE   10
**WELCOME TO THE BOOKS RETURNING WINDOW**
Enter the details of the teacher who wants to return books:
Enter teacher id 3
*AMOUNT OF FINE IS 2RS/DAY IF NOT SUBMITTED WITHIN 1 YEAR*
*AMOUNT OF FINE NEEDED TO BE SUBMITTED IS 0*
Return more books? n
**BOOKS HAVE BEEN RETURNED**
```

#11 DISPLAYING BOOKS

```
ENTER YOUR CHOICE   11
------------------------------------------------------------
BOOK_ID         BOOK_NAME        PUBLISHER        BOOK_TYPE
------------------------------------------------------------
      1                cs              abc         academic
      2              math            ncert         academic
      3           english            ncert         academic
------------------------------------------------------------
```

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#12 EXIT

```
ENTER YOUR CHOICE  12
************************************************************************
#1 for ADMIN LOGIN
#2 for TEACHER LOGIN
#3 for STUDENT LOGIN
#4 for EXIT
************************************************************************
ENTER YOUR CHOICE |
```

TEACHER LOGIN:

```
ENTER YOUR CHOICE 2
***WELCOME TO TEACHER'S LOGIN WINDOW***
Enter Teacher Id to display all the details of the Teacher 1
------------------------------------------------------------------------
       ID              NAME ISSUED_BOOKNAME   ISSUING_DATE RETURNING_DATE              FINE
------------------------------------------------------------------------
        1             aradh            math     2020-12-01     2020-12-01                 0
------------------------------------------------------------------------
```

STUDENT LOGIN:

```
ENTER YOUR CHOICE 3
***WELCOME TO STUDENT'S LOGIN WINDOW***
Enter Student Id to display all the details of the Student 1
------------------------------------------------------------------------
       ID              NAME ISSUED_BOOKNAME   ISSUING_DATE RETURNING_DATE              FINE
------------------------------------------------------------------------
        1                mg             eng     2020-12-01     2020-12-01                 0
------------------------------------------------------------------------
```

EXIT:

```
ENTER YOUR CHOICE 4
HOPE YOU COME BACK SOON :)
```

Thank You

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