

A
Project On

LIBRARY MANAGEMENT

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INTRODUCTION

Python is an interpreted, high-level, general-purpose programming language. Created by Guido van Rossum and first released in 1991, The IT revolution has not only affected business, education, science, technology but also the way people think Speedy change in economy and globalization are putting more and more stress on cutting edge technology and processing information swiftly accurately, and reliably..

All these features are shown by an electronic machine. i.e. a computer. The objective of the project is to design an application that. can help manage data and extract data of employees of a. business firm.

Problems with the conventional (Manual) system:

Lack of immediate information retrieval.

Lack of immediate information storage.

Lack of prompt updating of data.

Lacks sorting of information.

Redundancy of information.

Need and benefits of computerization

To make the information available accurately and speedily.

Scope of the Project

- 1) Easy management of books-**Host the library's database to allow easier access from anywhere, ensuring data is backed up and secure.
- 2) Books Issued-**Allows librarian to keep track of books from publisher and issued books.
- 3) Data Analytics for Insights-** Utilize analytics to track borrowing trends, popular genres, seasonal demand for books, and user behavior. This can help libraries plan better and optimize their collections.
- 4) Reports & Dashboards:** Provide librarians with easy-to-understand visual dashboards to track inventory, overdue books, and usage statistics in real-time.
- 5) Social Features:** Enable users to create reading lists, review books, share recommendations with friends, and interact with other users via online forums or book clubs.

6) Paperless System: Strive for a paperless library experience, with digital borrowing cards, notifications, and no physical records.

7) Energy-Efficient Technologies: Implement energy-saving systems for library buildings and digital infrastructure, contributing to sustainability.

Conclusion:

The future of a Library Management System is limitless, with the potential to become more user-friendly, efficient, and technologically advanced. By integrating AI, cloud computing, IoT, blockchain, and immersive technologies, libraries can modernize their systems and continue to serve as critical hubs for knowledge, community, and education in the digital age.

SOURCE CODE

```
# insert data
def insertdata():
    import mysql.connector as mp
    con=mp.connect(host='localhost', user='root', password="",
db='konkona')
    cursor=con.cursor()
    sno=int(input("enter serial no"))
    novel=input("enter novel")
    author=input("enter name of author")
    genre=input("enter genre")
    quantity=int(input("enter amt of copies"))
    rating=int(input("enter rating"))
    query="insert into library values({},'{}','{}','{}',{},{})".format(sno,
novel, author, genre, quantity,rating)
    cursor.execute(query)
    con.commit()
```

```

print("data inserted")
c=input("do you want to insert more data? yes/no")
if (c=='yes'):
    insertdata()
else:
    menu()
# UDATING OLD DATA
def updatedata():

def updatenovel():
    import mysql.connector as mp

conn=mp.connect(host='localhost',user='root',password="",db='konkona')
    cursor=conn.cursor()
    sno=int(input('Enter sno of book where details has to be updated'))
    novel=input('Enter updated novel')
    query="update library set novel ='{}' where sno
={}".format(novel,sno)
    cursor.execute(query)
    conn.commit()
    print("data updated successfully")
    k=input("do you want to update again? yes/no")
    if k=='yes':
        updatemenu()
    else:
        menu()
def updateauthor():
    import mysql.connector as mp

conn=mp.connect(host='localhost',user='root',password="",db='konkona')
    cursor=conn.cursor()
    sno=int(input('Enter sno of book where details has to be updated'))
    author=input('Enter updated author')

```

```

        query="update library set author ='{}' where sno
= {}".format(author,sno)
        cursor.execute(query)
        conn.commit()
        print("data updated successfully")
        k=input("do you want to update again? yes/no")
        if k=='yes':
            updatemenu()
        else:
            menu()

def updategenre():
    import mysql.connector as mp

conn=mp.connect(host='localhost',user='root',password="",db='konkona')
    cursor=conn.cursor()
    sno=int(input('Enter sno of book where details has to be updated'))
    genre=input('Enter updated genre')
    query="update library set genre ='{}' where sno
= {}".format(genre,sno)
    cursor.execute(query)
    conn.commit()
    print("data updated successfully")
    k=input("do you want to update again? yes/no")
    if k=='yes':
        updatemenu()
    else:
        menu()

def updatequantity():
    import mysql.connector as mp

conn=mp.connect(host='localhost',user='root',password="",db='konkona')
    cursor=conn.cursor()
    sno=int(input('Enter sno of book where details has to be updated'))
    quantity=input('Enter updated copies')

```

```

        query="update library set quantity ='{}' where sno
={}".format(quantity,sno)
        cursor.execute(query)
        conn.commit()
        print("data updated successfully")
        k=input("do you want to update again? yes/no")
        if k=='yes':
            updatemenu()
        else:
            menu()

```

```

def updatemenu():
    print("press t to update novel")
    print("press a to update authorname")
    print("press g to update genre")
    print("press c to update no of copies")
    choice=input("enter what you wish to update")
    if choice=='t':
        updatenovel()

    elif choice=='a':
        updateauthor()
    elif choice=='g':
        updategenre()
    elif choice=='c':
        updatequantity()
    else:
        print("no value updated")
    updatemenu()

print('data updated successfully')

```

#DISPLAY DATA

```

def displaydata():
    import mysql.connector as mp

conn=mp.connect(host='localhost',user='root',password="",db='konkona')
    cursor=conn.cursor()

    query="select * from library"
    cursor.execute(query)
    data=cursor.fetchall()
    for row in data:
        print(row)
    print('data displayed successfully')
    c=input("do you want to display again? yes/no")
    if c=='yes':
        displaydata()
    else:
        menu()
#DELETE DATA
def deletedata():
    import mysql.connector as mp

conn=mp.connect(host='localhost',user='root',password="",db='konkona')
    cursor=conn.cursor()

    sno=int(input('Enter sno of book where details has to be deleted'))

    query="delete from library where sno ={}".format(sno)
    cursor.execute(query)
    conn.commit()
    print('data deleted successfully')
    c=input("do you want to delete more data?")
    if c=='yes':
        deletedata()
    else:
        menu()

```

```

# plotting data

import pandas as pd
import matplotlib.pyplot as plt

# Load the CSV file
d = pd.read_csv(r"E:\Academics\iprojectttt.csv")
# Strip any leading/trailing spaces in column names
d.columns = d.columns.str.strip()

# Now accessing the 'novel' and 'quantity' columns

x = d['novel'].tolist()
y = d['quantity'].tolist()
z=d['rating'].tolist()

# Create the plot

plt.xlabel('Novel')
plt.ylabel('Quantity')

def line_chart():

    w=input("do you want to see quantity graph or ratings graph? Press q
or r respectively")
    if w=='q':
        plt.xlabel('Novel')
        plt.ylabel('Quantity')
        plt.plot(x, y)
        plt.show()
    elif w=='r':
        plt.xlabel('Novel')
        plt.ylabel('Rating')
        plt.plot(x, z)
        plt.show()

```



```

else:
    graphmenu()
e=input("do you wish to review? press yes or no")
if e=='yes':
    line_chart()
else:
    graphmenu()

```

```

def horizontal_bar():

```

```

    plt.xlabel('Novel')
    plt.ylabel('Quantity')
    plt.barh(x, y)
    plt.show()
    e=input("do you wish to review? press yes or no")
    if e=='yes':
        horizontal_bar()
    else:
        graphmenu()

```

```

def vertical_bar():

```

```

    plt.xlabel('Novel')
    plt.ylabel('Quantity')
    plt.bar(x, y)
    plt.show()
    e=input("do you wish to review? press yes or no")
    if e=='yes':
        vertical_bar()
    else:
        graphmenu()

```

```

def piechart():

```

```

    plt.pie(y, labels=x)
    plt.show()
    e=input("do you wish to review? press yes or no")
    if e=='yes':

```

```

        piechart()
    else:
        graphmenu()

def graphmenu():
    print("press l to plot line chart")
    print("press h to plot horizontal bar")
    print("press v to plot vertical bar")

    print("press p to plot pie chart")
    choice=input("enter what you wish to see")
    if choice=='l':
        line_chart()

    elif choice=='h':
        horizontal_bar()
    elif choice=='v':
        vertical_bar()
    elif choice=='p':
        piechart()
    else:
        print("no graph available")

#MENU

def menu():
    print("welcome to menu")
    print("press 1 for inserting data")
    print("press 2 for updating data")
    print("press 3 for display data")
    print("press 4 for deleteing data")
    print("press 5 for displaying graphing data")
    cho=int(input("enter your choice"))
    if cho==1:
        insertdata()
    elif cho==2:

```

```

        updatedata()
    elif cho==3:
        displaydata()
    elif cho==4:
        deletedata()
    elif cho==5:
        graphmenu()

    else:
        print("wrong choice")
        choi=input("if you still wish to continue press y")
        if choi=='y':
            menu()
        else:
            print("thank you for visiting")
# insert data
def insertdatas():
    import mysql.connector as mp
    con=mp.connect(host='localhost', user='root', password="",
db='konkona')
    cursor=con.cursor()
    sn=int(input("enter serial no"))
    name=input("enter name")
    book=input("enter name of book")
    grade=input("enter grade")

    query="insert into students
values( {},'{}','{}','{}' ).format(sn,name,book, grade )
    cursor.execute(query)
    con.commit()
    print("data inserted")
    c=input("do you want to insert more data? yes/no")
    if (c=='yes'):
        insertdatas()
    else:
        smenu()

```

```
def updatedatas():
```

```
    def updatenames():
```

```
        import mysql.connector as mp
```

```
conn=mp.connect(host='localhost',user='root',password='',db='konkona')
```

```
    cursor=conn.cursor()
```

```
    sn=int(input('Enter sno of book where details has to be updated'))
```

```
    name=input('Enter updated name')
```

```
    query="update students set name ='{}' where sn  
= {}".format(name,sn)
```

```
    cursor.execute(query)
```

```
    conn.commit()
```

```
    q=input("do you want to update again? press yes or no")
```

```
    if q=='yes':
```

```
        updatesmenu()
```

```
    else:
```

```
        smenu()
```

```
def updatebooks():
```

```
    import mysql.connector as mp
```

```
conn=mp.connect(host='localhost',user='root',password='',db='konkona')
```

```
    cursor=conn.cursor()
```

```
    sn=int(input('Enter sno of book where details has to be updated'))
```

```
    book=input('Enter updated book')
```

```
    query="update students set book ='{}' where sn  
= {}".format(book,sn)
```

```
    cursor.execute(query)
```

```
    conn.commit()
```

```
    q=input("do you want to update again? press yes or no")
```

```
    if q=='yes':
```

```
        updatesmenu()
```

```
    else:
```

```

    smenu()

def grades():
    import mysql.connector as mp

conn=mp.connect(host='localhost',user='root',password="",db='konkona')
    cursor=conn.cursor()
    sn=int(input('Enter sno of book where details has to be updated'))
    grade=input('Enter updated grade')
    query="update students set grade ={} where sn ={}".format(grade,
sn)
    cursor.execute(query)
    conn.commit()
    q=input("do you want to update again? press yes or no")
    if q=='yes':
        updatesmenu()
    else:
        smenu()

def updatesmenu():
    print("press n to update name")
    print("press b to update book")
    print("press g to update grade")

    choice=input("enter what you wish to update")
    if choice=='n':
        updatenames()

    elif choice=='b':
        updatebooks()
    elif choice=='g':
        grades()

    else:
        print("no value updated")

```

```

updatesmenu()

print('data updated successfully')

def displaydatas():
    import mysql.connector as mp

conn=mp.connect(host='localhost',user='root',password='',db='konkona')
    cursor=conn.cursor()

    query="select * from students"
    cursor.execute(query)
    data=cursor.fetchall()
    for row in data:
        print(row)
    print('data displayed successfully')
    c=input("do you want to display again? yes/no")
    if c=='yes':
        displaydatas()
    else:
        smenu()

def deletedatas():
    import mysql.connector as mp

conn=mp.connect(host='localhost',user='root',password='',db='konkona')
    cursor=conn.cursor()

    sn=int(input('Enter sno of book where details has to be deleted'))

    query="delete from students where sn ={}".format(sn)
    cursor.execute(query)
    conn.commit()
    print('data deleted successfully')
    c=input("do you want to delete more data?")

```

```
if c=='yes':
    deletedatas()
else:
    smenu()
```

```
# plotting data
```

```
import pandas as pd
import matplotlib.pyplot as plt
```

```
# Load the CSV file
d = pd.read_csv(r"E:\Academics\students.csv")
# Strip any leading/trailing spaces in column names
d.columns = d.columns.str.strip()
```

```
# Now accessing the 'novel' and 'quantity' columns
```

```
x = d['name'].tolist()
y = d['grade'].tolist()
```

```
# Create the plot
```

```
plt.xlabel('Name')
plt.ylabel('Grade')
```

```
def line_charts():
```

```
    plt.xlabel('Name')
    plt.ylabel('Grade')
    plt.plot(x, y)
    plt.show()
```

```
e=input("do you wish to review? press yes or no")
```

```

if e=='yes':
    line_charts()
else:
    graphsmenu()

def horizontal_bars():

    plt.xlabel('Name')
    plt.ylabel('Grade')
    plt.barh(x, y)
    plt.show()
    e=input("do you wish to review? press yes or no")
    if e=='yes':
        horizontal_bars()
    else:
        graphsmenu()

def vertical_bars():

    plt.xlabel('Name')
    plt.ylabel('Grade')
    plt.bar(x, y)
    plt.show()
    e=input("do you wish to review? press yes or no")
    if e=='yes':
        vertical_bars()
    else:
        graphsmenu()
def piecharts():

    plt.pie(y, labels=x)
    plt.show()

    e=input("do you wish to review? press yes or no")
    if e=='yes':
        piecharts()

```



```
else:  
    graphsmenu()
```

```
def graphsmenu():  
    print("press l to plot line chart")  
    print("press h to plot horizontal bar")  
    print("press v to plot vertical bar")  
  
    print("press p to plot pie chart")  
    choice=input("enter what you wish to see")  
    if choice=='l':  
        line_charts()  
  
    elif choice=='h':  
        horizontal_bars()  
    elif choice=='v':  
        vertical_bars()  
    elif choice=='p':  
        piecharts()  
    else:  
        print("no graph available")
```

```
def smenu():  
    print("welcome to menu")  
    print("press 1 for inserting data")  
    print("press 2 for updating data")  
    print("press 3 for display data")  
    print("press 4 for deleteing data")  
    print("press 5 for displaying graphs")  
    cho=int(input("enter your choice"))  
    if cho==1:
```

```

        insertdatas()
    elif cho==2:
        updatedatas()
    elif cho==3:
        displaydatas()
    elif cho==4:
        deletedatas()
    elif cho==5:
        graphsmenu()
    else:
        print("wrong choice")
        choi=input("if you still wish to continue press y")
        if choi=='y':
            smenu()
        else:
            print("thank you for visiting")

```

Main program

```

print("Welcome to the Library management")
print("This Application helps you keep track of books delivering from the publisher and issued by students")

```

```

choic=input("do you want to acess the library books or student system?, press b or s")

```

```

if choic=='b':
    menu()
elif choic=='s':
    smenu()

```

```

else:
    print("have a nice day")
    print("We hope you visit soon")

```

OUTPUT OF LIBRARY

INSERT DATA

Welcome to the Library management

do you want to access the library books or student system?, press b or sb

welcome to menu

press 1 for inserting data

press 2 for updating data

press 3 for display data

press 4 for deleteing data

press 5 for displaying graphing data

enter your choice1

enter serial no15

enter novel Famous Five

enter name of author Enid Blyton

enter genre Suspence

enter amt of copies40

enter rating4

data inserted

do you want to insert more data? yes/nono

UPDATE DATA

welcome to menu

press 1 for inserting data

press 2 for updating data

press 3 for display data

press 4 for deleteing data

press 5 for displaying graphing data

enter your choice2

press t to update novel

press a to update authorname

press g to update genre

press c to update no of copies

enter what you wish to updatet

Enter sno of book where details has to be updated8

Enter updated novel silent patient

data updated successfully
do you want to update again? yes/noyes
press t to update novel
press a to update authorname
press g to update genre
press c to update no of copies
enter what you wish to updatea
Enter sno of book where details has to be updated10
Enter updated authorAntoine Galland
data updated successfully
do you want to update again? yes/noyes
press t to update novel
press a to update authorname
press g to update genre
press c to update no of copies
enter what you wish to updateg
Enter sno of book where details has to be updated11
Enter updated genresuspense
data updated successfully
do you want to update again? yes/noyes
press t to update novel
press a to update authorname
press g to update genre
press c to update no of copies
enter what you wish to updatec
Enter sno of book where details has to be updated14
Enter updated copies90
data updated successfully
do you want to update again? yes/nonono
DISPLAY DATA
welcome to menu
press 1 for inserting data
press 2 for updating data
press 3 for display data
press 4 for deleteing data
press 5 for displaying graphing data

enter your choice3

- (1, 'better than movies', 'Lynn Painter', 'romcom', 50, 5)
- (2, 'jk rowling', 'jk rowling ', 'fiction', 100, 4)
- (3, 'trigonometry', 'sd lowney', 'Fantasy', 34, 3)
- (4, 'hehehe', 'Lewis Carroll', ' Fantasy', 50, 3)
- (5, 'harry potter and the prisoner of azkaban', 'jk rowling', 'fantasy', 40, 2)
- (6, 'twisted hate', 'ana huang', 'romance', 56, 1)
- (7, 'kite runner', 'richard russell', 'post-war', 50, 2)
- (8, ' silent patient', 'alex michaelides', 'psychological thriller', 69, 3)
- (9, 'good girls guide to murder', 'holly jackson', 'mystery', 45, 4)
- (10, 'ali baba anD 40 thieves', 'Antoine Galland', 'comedy ', 50, 5)
- (11, 'alice inthe wonderland', 'lewis carroll', 'suspense ', 89, 4)
- (12, 'mistborn', 'sanderson', 'fantasy', 60, 3)
- (13, 'Heidi', 'Johanna Spyri', 'fiction', 46, 3)
- (14, 'spanish love deception', 'elena armas', 'rom-com', 90, 3)
- (15, ' Famous Five', ' Enid Blyton', ' Suspence ', 40, 4)

data displayed successfully

do you want to display again? yes/no

DELETE DATA

welcome to menu

press 1 for inserting data

press 2 for updating data

press 3 for display data

press 4 for deleteing data

press 5 for displaying graphing data

enter your choice4

Enter sno of book where details has to be deleted15

data deleted successfully

do you want to delete more data?

GRAPHING DATA

welcome to menu

press 1 for inserting data

press 2 for updating data

press 3 for display data

press 4 for deleteing data
press 5 for displaying graphing data
enter your choice5
press l to plot line chart
press h to plot horizontal bar
press v to plot vertical bar
press p to plot pie chart
enter what you wish to seel
do you want to display again? press yes or no

OUTPUT OF STUDENTS

INSERT DATA

Welcome to the Library management

do you want to access the library books or student system?, press b or s s

welcome to menu

press 1 for inserting data

press 2 for updating data

press 3 for display data

press 4 for deleteing data

enter your choice1

enter serial no10

enter nameKaushal

enter name of bookHeidi

enter grade7

data inserted

do you want to insert more data? yes/no no

UPDATE DATA

Welcome to the Library management

do you want to access the library books or student system?, press b or ss

welcome to menu

press 1 for inserting data

press 2 for updating data

press 3 for display data

press 4 for deleteing data

enter your choice2

press n to update name

press b to update book

press g to update grade

enter what you wish to updaten

Enter sno of book where details has to be updated6

Enter updated nameSparsh

do you want to update again? press yes or noyes

press n to update name

press b to update book

press g to update grade

enter what you wish to updateb

Enter sno of book where details has to be updated7

Enter updated bookmistborn

do you want to update again? press yes or noyes

press n to update name

press b to update book

press g to update grade

enter what you wish to updateg

Enter sno of book where details has to be updated8

Enter updated grade7

do you want to update again? press yes or nono

DISPLAY DATA

welcome to menu

press 1 for inserting data

press 2 for updating data

press 3 for display data

press 4 for deleteing data

enter your choice3

(1, ' Sanskar', 'better than movies', 12)

(2, 'Mimansha', 'heidi', 12)

(3, 'Rehan ', ' trigonometry', 12)

(4, 'Somen', ' mistborn', 11)

(5, 'Vaibhav', 'trigonometry', 11)

(6, 'Sparsh', 'Twisted', 10)

(7, 'Sakshi', 'mistborn', 9)

(8, 'Mohak Singh', 'It ends withus ', 7)

(9, 'Nirbhay', ' bettr than movies', 8)

(10, 'Kaushal', 'Heidi', 7)

data displayed successfully

DELETE DATA

welcome to menu

press 1 for inserting data

press 2 for updating data

press 3 for display data

press 4 for deleteing data

enter your choice4

Enter sno of book where details has to be deleted10

data deleted successfully
do you want to delete more data?

GRAPHED DATA

VERTICAL BAR

Welcome to the Library management
do you want to access the library books or student system?, press b or ss
welcome to menu

press 1 for inserting data
press 2 for updating data
press 3 for display data
press 4 for deleteing data
press 5 for displaying graphs
enter your choice5

press l to plot line chart
press h to plot horizontal bar
press v to plot vertical bar
press p to plot pie chart
enter what you wish to seev

HORIZONTAL BAR

Welcome to the Library management
do you want to access the library books or student system?, press b or ss
welcome to menu

press 1 for inserting data
press 2 for updating data
press 3 for display data
press 4 for deleteing data
press 5 for displaying graphs
enter your choice5

press l to plot line chart
press h to plot horizontal bar
press v to plot vertical bar
press p to plot pie chart
enter what you wish to seeh

#LINE CHART

welcome to menu
press 1 for inserting data
press 2 for updating data
press 3 for display data
press 4 for deleteing data
press 5 for displaying graphs
enter your choice5
press 1 to plot line chart
press h to plot horizontal bar
press v to plot vertical bar
press p to plot pie chart
enter what you wish to see l
#PIE CHART

welcome to menu
press 1 for inserting data
press 2 for updating data
press 3 for display data
press 4 for deleteing data
press 5 for displaying graphs
enter your choice5
press 1 to plot line chart
press h to plot horizontal bar
press v to plot vertical bar
press p to plot pie chart
enter what you wish to see p

```
mysql> select * from students;
```

| sn | name | book | grade |
|----|----------|--------------------|-------|
| 1 | Lakshay | better than movies | 12 |
| 2 | Prerak | heidi | 12 |
| 3 | Riddhima | jk rowling | 12 |
| 4 | Somen | Mistborn | 11 |
| 5 | Vaibhav | trignometry | 11 |
| 6 | Jahnvi | Twisted | 10 |
| 7 | Sakshi | Biology | 9 |

```
7 rows in set (0.00 sec)
```

MySQL 8.0 Command Line Client

13 rows in set (0.03 sec)

mysql> select * from library;

| sno | novel | author | genre | quantity | rating |
|-----|--|------------------|------------------------|----------|--------|
| 1 | better than movies | Lynn Painter | romcom | 50 | 5 |
| 2 | jk rowling | ef | fiction | 100 | 4 |
| 3 | trigonometry | sd lowney | Fantasy | 34 | 3 |
| 4 | hehehe | Lewis Carroll | Fantasy | 50 | 3 |
| 5 | harry potter and the prisoner of azkaban | jk rowling | fantasy | 40 | 2 |
| 6 | twisted hate | ana huang | romance | 56 | 1 |
| 7 | kite runner | richard russell | vy | 50 | 2 |
| 8 | ty | alex michaelides | psychological thriller | 69 | 3 |
| 9 | yu | holly jackson | mystery | 45 | 4 |
| 10 | ali baba anD 40 thieves | abc | comedy | 2 | 5 |
| 11 | alice inthe wonderland | lewis carroll | fantasy | 89 | 4 |
| 12 | mistborn | sanderson | fantasy | 60 | 3 |
| 13 | Heidi | Johanna Spyri | fiction | 46 | 3 |
| 14 | spanish love deception | elena armas | rom-com | 20 | 3 |

14 rows in set (0.00 sec)

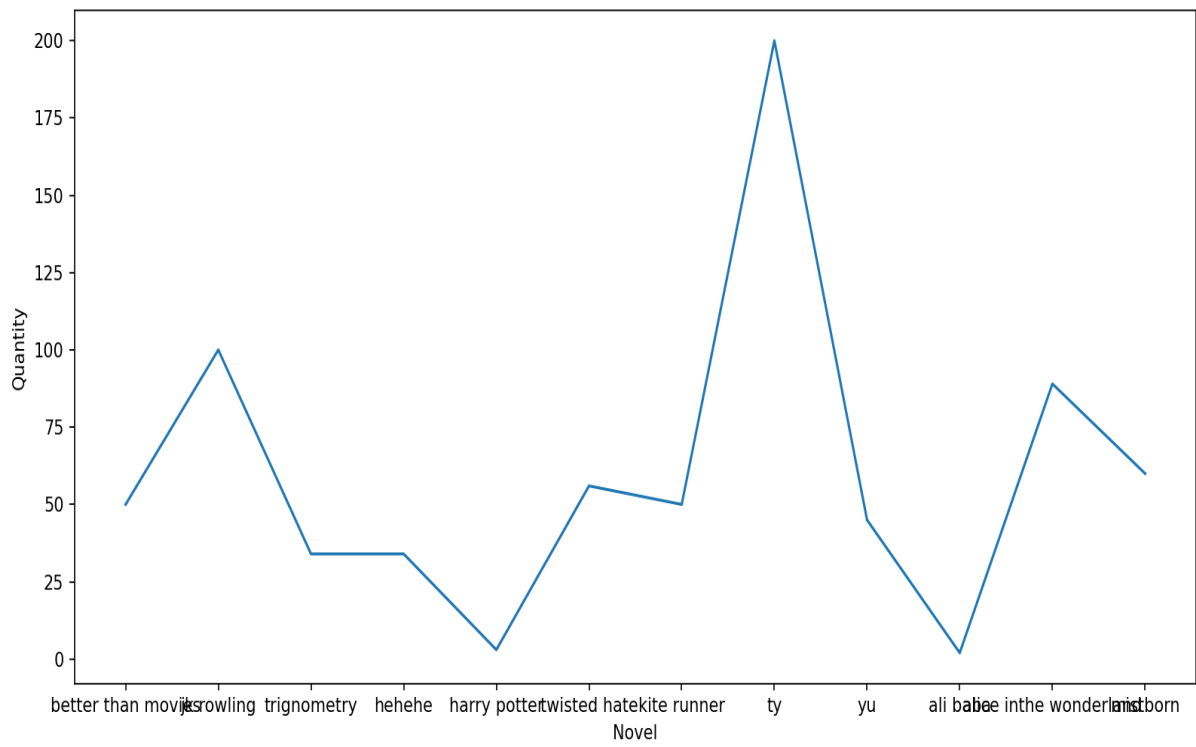


Figure 1

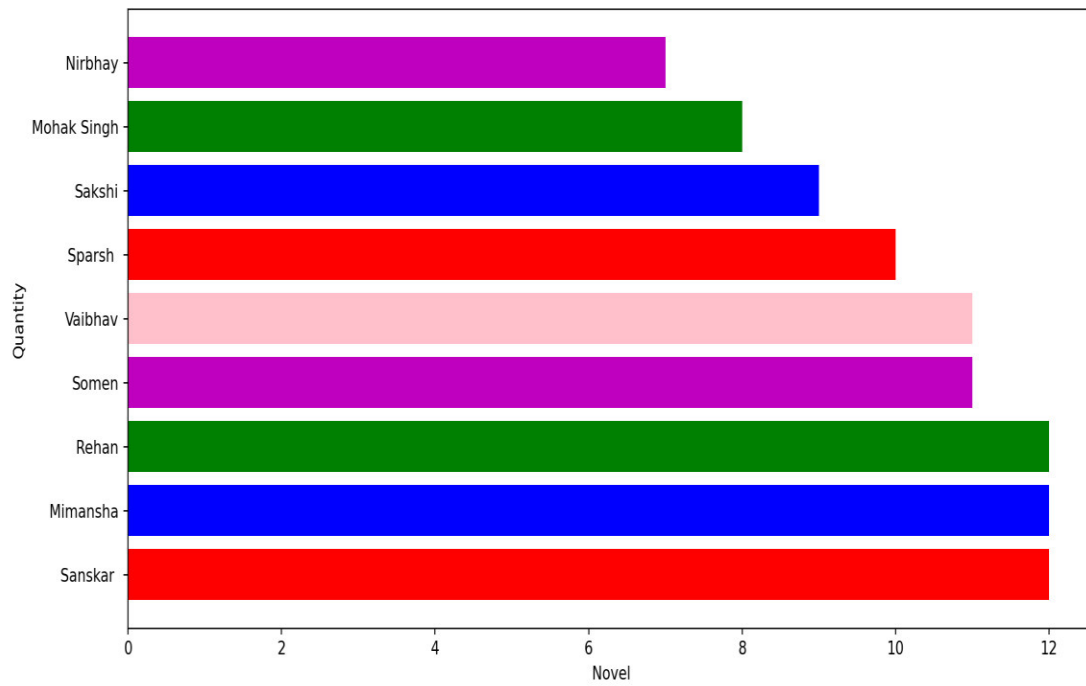


Figure 1

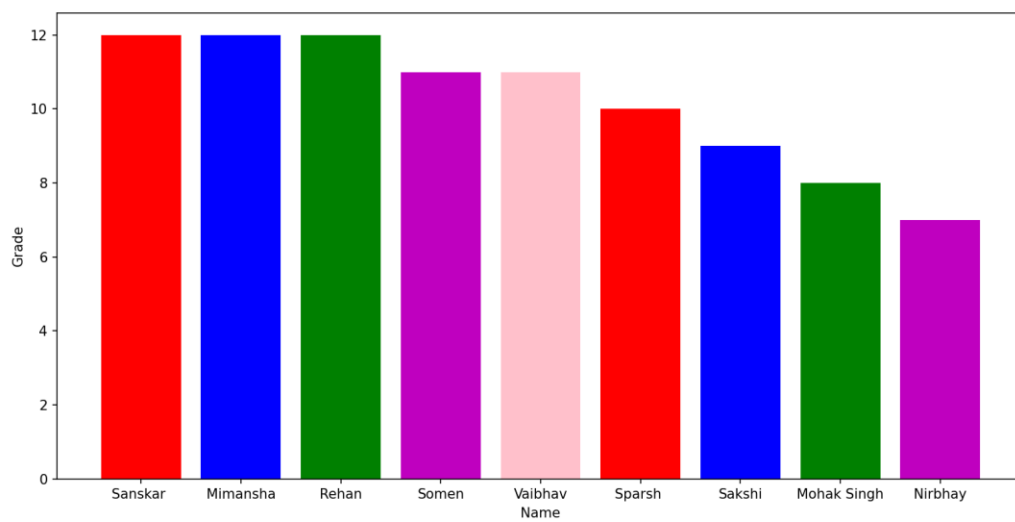


Figure 1

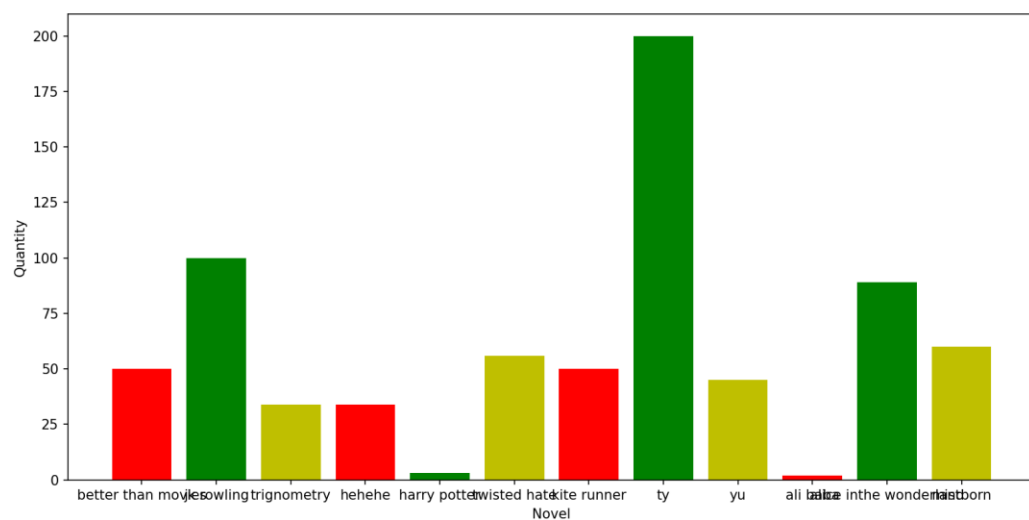


Figure 1

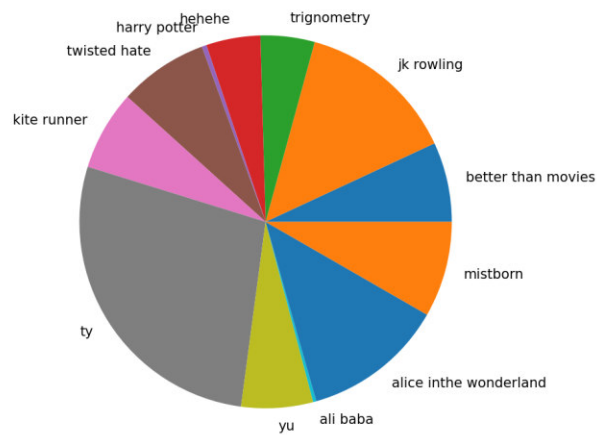


Figure 1

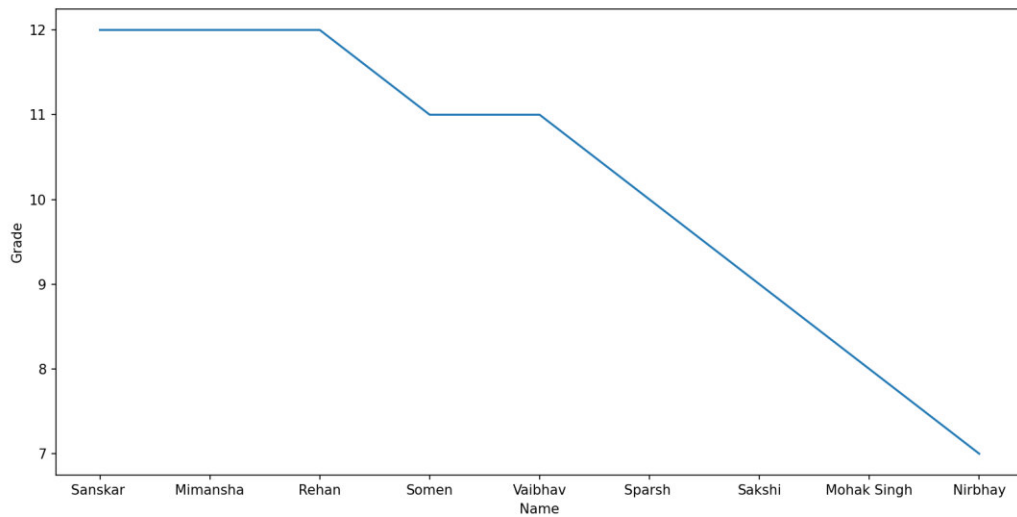


Figure 1

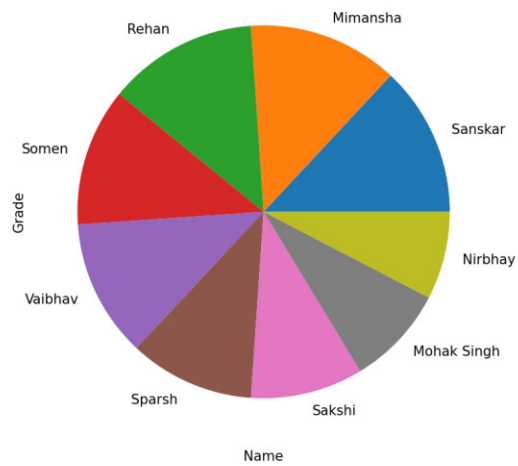


Figure 1

