

1. Write a program that uses class to store the name and marks in 4 subjects of students. Use the list to store the marks in 4 subjects. Also find the total marks of the students and find the name of the student who have obtained the highest total marks.

```
class Student:
    std_total_marks={} #class data member

    def __init__(self,name,marks):
        self.name=name
        self.marks=marks

    def calculate_total_marks(self):
        self.total=sum(self.marks)
        Student.std_total_marks.update({self.name:self.total})

    #Class method
    def display_name_total_marks():
        print("Students name and their total
marks:",Student.std_total_marks)

    def find_topper():
        value=list(Student.std_total_marks.values())
        key=list(Student.std_total_marks.keys())
        max_index=value.index(max(value))
        topper=key[max_index]
        print(f"{topper} obtained the highest total mark
(Marks:{value[max_index]})\n")

num=int(input("Enter how many student are there? : "))
print()

for i in range(1,num+1):
    print()
    name=input(f"{i}.Enter the name of the student: ")
    print(f" Enter marks of student ({name}): ")
    marks=[
        int(input(" Sub1: ")),
        int(input(" Sub2: ")),
        int(input(" Sub3: ")),
        int(input(" Sub4: "))
    ]
    std=Student(name,marks)
    std.calculate_total_marks()

Student.display_name_total_marks()
Student.find_topper()
```

OUTPUT:

Enter how many student are there? : 3

1.Enter the name of the student: Arohi Sen

Enter marks of student (Arohi Sen):

Sub1: 54

Sub2: 65

Sub3: 21

Sub4: 45

2.Enter the name of the student: Debjit Roy

Enter marks of student (Debjit Roy):

Sub1: 55

Sub2: 78

Sub3: 98

Sub4: 93

3.Enter the name of the student: Anish Pal

Enter marks of student (Anish Pal):

Sub1: 56

Sub2: 67

Sub3: 45

Sub4: 51

Students name and their total marks: {'Arohi Sen': 185, 'Debjit Roy': 324, 'Anish Pal': 219}

Debjit Roy obtained the highest total mark (Marks:324)

2. Write a program which has the class "circle". Use a class variable to define the value of constant " π ".

Calculate the area and circumference of the circle with specified value.

```
import math

class Circle:
    PI=math.pi # class attribute

    def __init__(self,radius):
        self.radius=radius

    def cal_area(self):
        return Circle.PI*self.radius**2

    def cal_circumference(self):
        return 2*Circle.PI*self.radius

radius=int(input("Enter the value of radius: "))
c1=Circle(radius)

area=c1.cal_area()
circumference=c1.cal_circumference()

print(f"The area of the circle is {area}\nCircumference of the circle is {circumference}")
```

OUTPUT:

Enter how many student are there? : 3

Enter the value of radius: 5
The area of the circle is 78.53981633974483
Circumference of the circle is 31.41592653589793

3. Write a program which will use the class "Account". In this class, you have to use deposit(), withdraw() and balance enquiry().

```
import datetime

class Account:
    def cur_date():
        return (datetime.date.today())
    def cur_time():
        return (datetime.datetime.now()).strftime("%X")

    def __init__(self, acc_no, name):
        self.acc_no = acc_no
        self.name = name
        self.balance = 0

    def deposit(self):
        amount = float(input("\nEnter the amount to be deposit: "))
        self.balance = self.balance + amount

        cur_date = Account.cur_date()
        cur_time = Account.cur_time()

        print (f"Your A/C {self.acc_no} is credited with Rs.{amount} on {cur_date} at {cur_time}. Avl Balance: Rs.{self.balance}\n")

    def withdraw(self):
        amount = float(input("\nEnter the amount to withdraw: "))
        if (self.balance >= amount):
            self.balance = self.balance - amount
            cur_date = Account.cur_date()
            cur_time = Account.cur_time()
            print (f"Your A/C {self.acc_no} is debited with Rs.{amount} on {cur_date} at {cur_time}. Avl Balance: Rs.{self.balance}\n")
```

```

        else:
            print ('Insuficient Balance!!!\n')

    def enquiry(self):
        print (f"\nAvlailable Balance: {self.balance}\n")

acc_no=input("Enter the Account No. ")
name=input("Enter the name of the account holder: ")
print("\n\n")

acc = Account(acc_no,name)
while(True):
    print(" -----
    -----
    ---")
    print("| \tPress 1: For Credit\tPress 2: For Debit\tPress
    3: For Balance Enquiry\tPress 4: For Exit\t|")
    print(" -----
    -----
    ---")
    choice=int(input("Enter your choice: "))

    if choice == 1:
        acc.deposit()
    elif choice == 2:
        acc.withdraw()
    elif choice == 3:
        acc.enquiry()
    elif choice == 4:
        exit()
    else:
        print("Wrong Choice!!!!!!!")

```

OUTPUT:

```

PS G:\MCA_Techno_1st_semester\PythonCoding\MCA Assignment\PythonLabAssignment> python .\3.py
Enter the Account No. 50355565454
Enter the name of the account holder: Arohi Sen

```

```

    -----
    -----
    |      Press 1: For Credit      Press 2: For Debit      Press 3: For Balance Enquiry      Press
    4: For Exit      |
    -----
Enter your choice: 1

```

```

Enter the amount to be deposit: 5000
Your A/C 50355565454 is credited with Rs.5000.0 on 2023-01-26 at 08:13:37. Avl Balance:
Rs.5000.0

-----
|      Press 1: For Credit      Press 2: For Debit      Press 3: For Balance Enquiry      Press
4: For Exit      |
-----

Enter your choice: 2

Enter the amount to withdraw: 2500
Your A/C 50355565454 is debited with Rs.2500.0 on 2023-01-26 at 08:13:53. Avl Balance:
Rs.2500.0

-----
|      Press 1: For Credit      Press 2: For Debit      Press 3: For Balance Enquiry      Press
4: For Exit      |
-----

Enter your choice: 2

Enter the amount to withdraw: 3000
Insuficient Balance!!!

-----
|      Press 1: For Credit      Press 2: For Debit      Press 3: For Balance Enquiry      Press
4: For Exit      |
-----

Enter your choice: 3

Avlailable Balance: 2500.0

-----
|      Press 1: For Credit      Press 2: For Debit      Press 3: For Balance Enquiry      Press
4: For Exit      |
-----

Enter your choice: 4
PS G:\MCA_Techno_1st_semester\PythonCoding\MCA_Assignment\PythonLabAssignment>

```

4. Write a python program which will keep track of the stock of books available in the library. In this program, you will have to use the add() to add the books, and also the display().

```

'''
4. Write a python program which will keep track of
the stock of books
available in the library. In this program, you
will have to use the
add( ) to add the books, and also the display( ).
'''
import datetime

class Libaray:
    total_list_of_books=[]

```

```

def add(self):
    self.name=input("Enter Book Title: ")
    self.author=input("Enter Author Name: ")
    self.number_of_copy=int(input("No of Book: "))
    self.cur_date=datetime.date.today()
    self.book_details=[self.name,self.author,self.n
umber_of_copy,self.cur_date]
    Libaray.total_list_of_books.append(self.book_de
tails)

def display(self):
    print(" List of Books Avlailable in Libaray ")
    for i in Libaray.total_list_of_books:
        print(f" Title: {i[0]}")
        print(f" Author: {i[1]}")
        print(f" No of Books Avl: {i[2]}")
        print(f" Added on: {i[3]}\n")

l1=Libaray()
while(True):
    print(" -----
-----")
    print("|      Press 1: for Add Book      Press 2: for
Display Books      Press 3: for Exit      |")
    print(" -----
-----")
    choice=int(input("Enter your choice: "))

    if choice == 1:
        print()
        l1.add()
        print()
    elif choice == 2:
        print()
        l1.display()

```

```

        print()
    elif choice == 3:
        exit()
    else:
        print("Wrong Choice!!!!!!")

```

OUTPUT:

```

-----
|      Press 1: Add Book      Press 2: Display Books      Press 3: Exit      |
-----
Enter your choice: 1

Enter Book Title: Let Us Python
Enter Author Name: Aditya Kanetkar
No of Book: 32

-----
|      Press 1: Add Book      Press 2: Display Books      Press 3: Exit      |
-----
Enter your choice: 1

Enter Book Title: Computer Architecture
Enter Author Name: Morris Mano
No of Book: 25

-----
|      Press 1: Add Book      Press 2: Display Books      Press 3: Exit      |
-----
Enter your choice: 1

Enter Book Title: Database System Concepts
Enter Author Name: Arohi Sen
No of Book: 40

-----
|      Press 1: Add Book      Press 2: Display Books      Press 3: Exit      |
-----
Enter your choice: 1

Enter Book Title: Computer Networks
Enter Author Name: Niloy Das
No of Book: 8

-----
|      Press 1: Add Book      Press 2: Display Books      Press 3: Exit      |
-----
Enter your choice: 2

List of Books Avlailable in Libaray
Title: Let Us Python
Author: Aditya Kanetkar
No of Books Avl: 32
Added on: 2023-01-25

Title: Computer Architecture
Author: Morris Mano
No of Books Avl: 25
Added on: 2023-01-25

Title: Database System Concepts
Author: Arohi Sen
No of Books Avl: 40
Added on: 2023-01-25

Title: Computer Networks
Author: Niloy Das
No of Books Avl: 8
Added on: 2023-01-25

```

```
-----
|      Press 1: Add Book      Press 2: Display Books      Press 3: Exit      |
|-----|-----|-----|
Enter your choice: 3
```

5. Write a python program that will accept the code and price of 5 items in a list. The user will give the quantity as input. Display the total billing as like :
Code Price Quantity TotalAmt

```
'''
    5. Write a python program that will accept the code and
    price of 5 items
        in a list. The user will give the quantity as input.
    Display the total
        billing as like :
        Code Price Quantity TotalAmt
'''

import datetime

class Product:
    code=1000
    total_list_of_products=[]
    sold_products=[]
    all_product_code=[]
    total=0
    def add(self):
        self.code=self.code+1
        self.name=input("Enter Product Name: ")
        self.price_per_pic=int(input("Enter Price Per Pic : "))
        self.product_details=[self.code,self.name,self.price_p
er_pic]
        Product.total_list_of_products.append(self.product_det
ails)

    def display(self):
        print(" List of Products Avlailable in Store \n")
        print(f"\tCode\t\t\t Product\t\t Price/Unit")
        for i in Product.total_list_of_products:
            for j in i:
                print(f"\t{j}\t",end="")
        print()
```



```

def create_invoice(self):
    self.cus_name=input("Enter Customer Name: ")
    print()

    #Collecting all the code of the product
    for j in Product.total_list_of_products:
        Product.all_product_code.append(j[0])

    for i in range(0,5):
        self.code=int(input("Enter Product Code: "))
        if self.code in Product.all_product_code:
            for i in Product.total_list_of_products:
                if self.code == i[0]:
                    self.quantity=int(input("Enter
Quantity: "))
                    self.item_price=i[2]*self.quantity
                    Product.total=Product.total+self.item_
price
                    item=list(i)
                    item.append(self.quantity)
                    item.append(self.item_price)
                    Product.sold_products.append(item)
                else:
                    print("Invaild Invoke No.!!\n")
                    continue
            print()

    def show_invoice(self):
        inv=5004334
        print("\tCustomer Name: ",self.cus_name,end="\t\t")
        print("Invoice No. ",inv)
        inv+=1
        print(f"\tCode\t      Product\t  Price/Unit\t      Quant
ity\t      Total\t")
        for i in Product.sold_products:
            for j in i:
                print(f"\t{j}\t",end="")
            print()

```

```

        print("-----")
        print("-----")
        print("Total Amount: ",Product.total)

p1=Product()
while(True):
    print(" -----")
    print("-----")
    print("| \tPress 1: Add Product\tPress 2: Show
Product\tPress 3: Create invoice\t Press 4: Show
invoice\tPress 0: Exit\t|")
    print(" -----")
    print("-----")
    choice=int(input("Enter your choice: "))

    if choice == 1:
        print()
        p1.add()
        print()
    elif choice == 2:
        print()
        p1.display()
        print()
    elif choice == 3:
        print()
        p1.create_invoice()
        print()
    elif choice == 4:
        print()
        p1.show_invoice()
        print()
    elif choice == 0:
        exit()
    else:
        print("Wrong Choice!!!!!!")

```

OUTPUT:

```

-----
|      Press 1: Add Product    Press 2: Show Product    Press 3: Create invoice    Press 4: Show
invoice    Press 0: Exit    |

```

Enter your choice: 1

Enter Product Name: Ball Pen
Enter Price Per Pic : 3

/ Press 1: Add Product Press 2: Show Product Press 3: Create invoice Press 4: Show
invoice Press 0: Exit

Enter your choice: 1

Enter Product Name: HB Pencil
Enter Price Per Pic : 5

/ Press 1: Add Product Press 2: Show Product Press 3: Create invoice Press 4: Show
invoice Press 0: Exit

Enter your choice: 1

Enter Product Name: Eraser
Enter Price Per Pic : 10

/ Press 1: Add Product Press 2: Show Product Press 3: Create invoice Press 4: Show
invoice Press 0: Exit

Enter your choice: 1

Enter Product Name: Geometry Box
Enter Price Per Pic : 50

/ Press 1: Add Product Press 2: Show Product Press 3: Create invoice Press 4: Show
invoice Press 0: Exit

Enter your choice: 1

Enter Product Name: Pencil Box
Enter Price Per Pic : 35

/ Press 1: Add Product Press 2: Show Product Press 3: Create invoice Press 4: Show
invoice Press 0: Exit

Enter your choice: 1

Enter Product Name: Keyboard
Enter Price Per Pic : 70

/ Press 1: Add Product Press 2: Show Product Press 3: Create invoice Press 4: Show
invoice Press 0: Exit

Enter your choice: 1

Enter Product Name: Whitener
Enter Price Per Pic : 15

```

-----
/      Press 1: Add Product   Press 2: Show Product   Press 3: Create invoice   Press 4: Show
invoice Press 0: Exit   |
-----

Enter your choice: 2

List of Products Available in Store

      Code      Product      Price/Unit
1001      Ball Pen          3
1002      HB Pencil         5
1003      Eraser            10
1004      Geometry Box      50
1005      Pencil Box        35
1006      Keyboard          70
1007      Whitener          15
-----

/      Press 1: Add Product   Press 2: Show Product   Press 3: Create invoice   Press 4: Show
invoice Press 0: Exit   |
-----

Enter your choice: 3

Enter Customer Name: Arohi Sen

Enter Product Code: 1001
Enter Quantity: 5

Enter Product Code: 1002
Enter Quantity: 2

Enter Product Code: 1003
Enter Quantity: 1

Enter Product Code: 1004
Enter Quantity: 1

Enter Product Code: 1006
Enter Quantity: 1

-----

/      Press 1: Add Product   Press 2: Show Product   Press 3: Create invoice   Press 4: Show
invoice Press 0: Exit   |
-----

Enter your choice: 4

      Customer Name: Whitener      Invoice No. 5004334
      Code      Product      Price/Unit      Quantity      Total
1001      Ball Pen          3              5              15
1002      HB Pencil         5              2              10
1003      Eraser            10             1              10
1004      Geometry Box      50             1              50
1006      Keyboard          70             1              70
-----

--
Total Amount: 155

-----

/      Press 1: Add Product   Press 2: Show Product   Press 3: Create invoice   Press 4: Show
invoice Press 0: Exit   |
-----

Enter your choice: 0
PS G:\MCA_Techno_1st_semester\PythonCoding\MCA Assignment\PythonLabAssignment>

```

Everyone has to submit these 5 programs as assignments(Hardcopy in A4 Page) in the Python Lab Exam.