

## Practical: 1

### Source code:

```
def numDigits(n) :
    if (n < 10):
        return 1
    return 1 + numDigits(n / 10)

def rotated_number(a,n):
    divide_by = pow(10,n - 1)
    e = a%10
    f = a/10
    rotated_number = e * divide_by + f
    return rotated_number;

def sq_sum(rpm):
    num=rpm
    sq=0
    while(num!=0):
        digit=int(num%10)
        sq+=digit*digit
        num=int(num/10)
    return sq

rpm=int(input("Enter RPM"))
max_rpm = rpm * 8;
n=0

while(rpm<max_rpm):
    n=n+1

    sq=sq_sum(rpm)

    sqm=sq*323

    print(sqm)

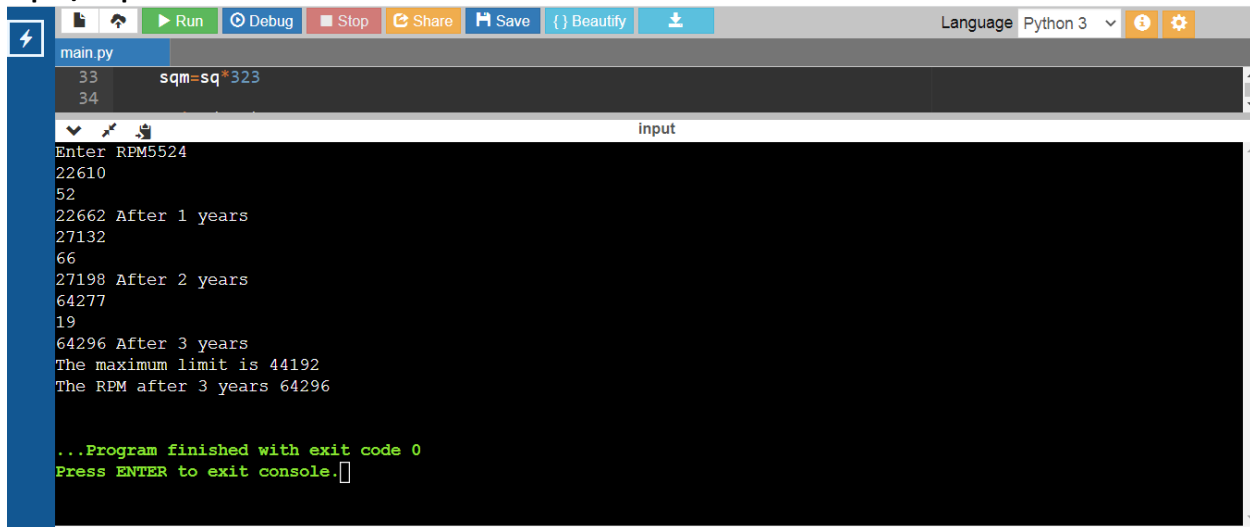
    rot_num=int(rotated_number(rpm,numDigits(rpm))%100
    print(rot_num)

    new_rpm = sqm + rot_num
    print(new_rpm,"After",n,"years")

    rpm=new_rpm
```

```
print("The maximum limit is", max_rpm)
print("The RPM after",n,"years",rpm)
```

### Input/Ouput:



The screenshot shows a Python IDE with a toolbar at the top containing icons for Run, Debug, Stop, Share, Save, Beautify, and a download icon. The language is set to Python 3. The code in the editor is:

```
main.py
33 sqm=sq*323
34
```

The output window shows the following text:

```
input
Enter RPM5524
22610
52
22662 After 1 years
27132
66
27198 After 2 years
64277
19
64296 After 3 years
The maximum limit is 44192
The RPM after 3 years 64296

...Program finished with exit code 0
Press ENTER to exit console.
```

Practical: 2

### Source code:

```
def increasing(profit):
    for i in range(len(profit)-1):
        if profit[i]>profit[i+1]:
            return False
    return True

def decreasing(profit):
    for i in range(len(profit)-1):
        if profit[i]<profit[i+1]:
            return False
    return True

def mountain(profit):
    for i in range(11):
        if increasing(profit[0:i+1]) and decreasing(profit[i:11]):
            return True
    return False

def valley(profit):
    for i in range(11):
        if decreasing(profit[0:i+1]) and increasing(profit[i: 11]):
            return True
    return False

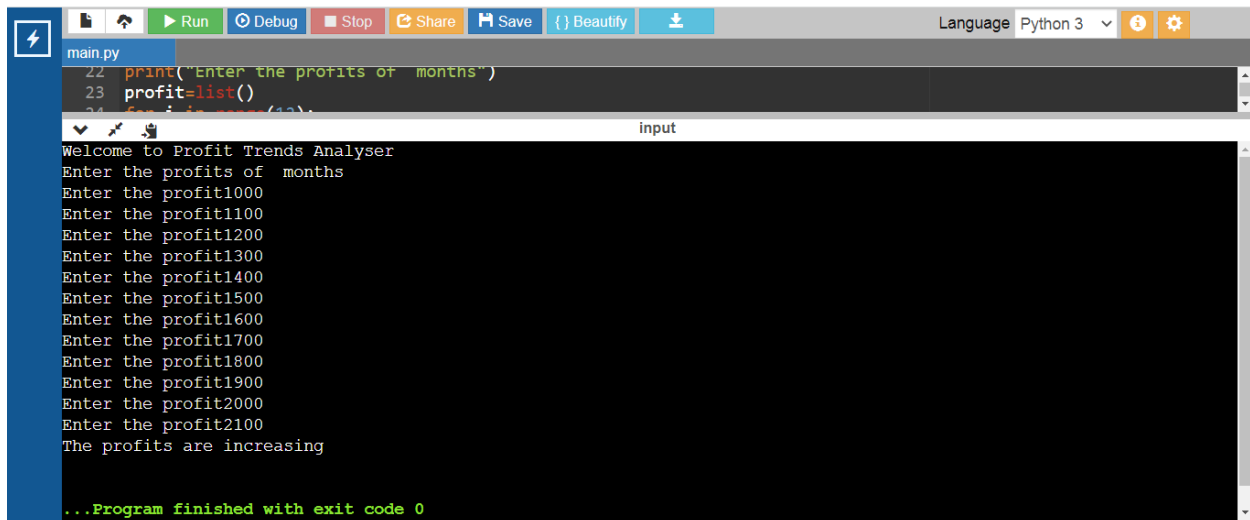
print("Welcome to Profit Trends Analyser")
print("Enter the profits of months")
profit=list()
for i in range(12):
    temp=int(input("Enter the profit"))
```

```

    profit.append(temp)
if increasing(profit)==True:
    print("The profits are increasing")
elif decreasing(profit)==True:
    print("The profits are decreasing")
elif mountain(profit):
    print("The profits are in form of mountain")
elif valley(profit):
    print("The profits are in form of valley")
else:
    print("The profits are random")

```

### Input/Output:



```

main.py
22 print("Enter the profits of months")
23 profit=list()
24 for i in range(12):
    profit.append(int(input("Enter the profit"+str(i+1)+" : ")))

Welcome to Profit Trends Analyser
Enter the profits of months
Enter the profit1000
Enter the profit1100
Enter the profit1200
Enter the profit1300
Enter the profit1400
Enter the profit1500
Enter the profit1600
Enter the profit1700
Enter the profit1800
Enter the profit1900
Enter the profit2000
Enter the profit2100
The profits are increasing

...Program finished with exit code 0

```

### Practical: 3

#### Source code:

```

marks={}
while(1):
    subjectwise = {}
    name = input("Enter the name of Student:")
    if name=='None':

```

```

        break
    phy=int(input("Enter the marks in physics:"))
    chem=int(input("Enter the marks in chemistry:"))
    math=int(input("Enter the marks in mathematics:"))
    print(phy)
    print(chem)
    print(math)
    subjectwise['physics']=phy
    subjectwise['chemistry']=chem
    subjectwise['mathematics']=math

    print(subjectwise)
    marks[name]=subjectwise

    total=phy+chem+math
    per=total/3

    marks[name]=per

    print("The student",name,"scored percentage marks of",per)
    print(total)
    print(per)

keymax=max(marks,key=marks.get)
#allvalue=marks.values
#maxvalue=max(allvalue)
print("The student with highest percentage marks",keymax)

```

### **Input/Output:**

```

Enter the name of Student:Ram
Enter the marks in physics:90
Enter the marks in chemistry:91
Enter the marks in mathematics:92
90
91
92
{'physics': 90, 'chemistry': 91, 'mathematics': 92}
The student Ram scored percentage marks of 91.0
273
91.0

```

Enter the name of Student:Sham

Enter the marks in physics:80

Enter the marks in chemistry:81

Enter the marks in mathematics:82

80

81

82

{'physics': 80, 'chemistry': 81, 'mathematics': 82}

The student Sham scored percentage marks of 81.0

243

81.0

Enter the name of Student:None

The student with highest percentage marks Ram