LAB2

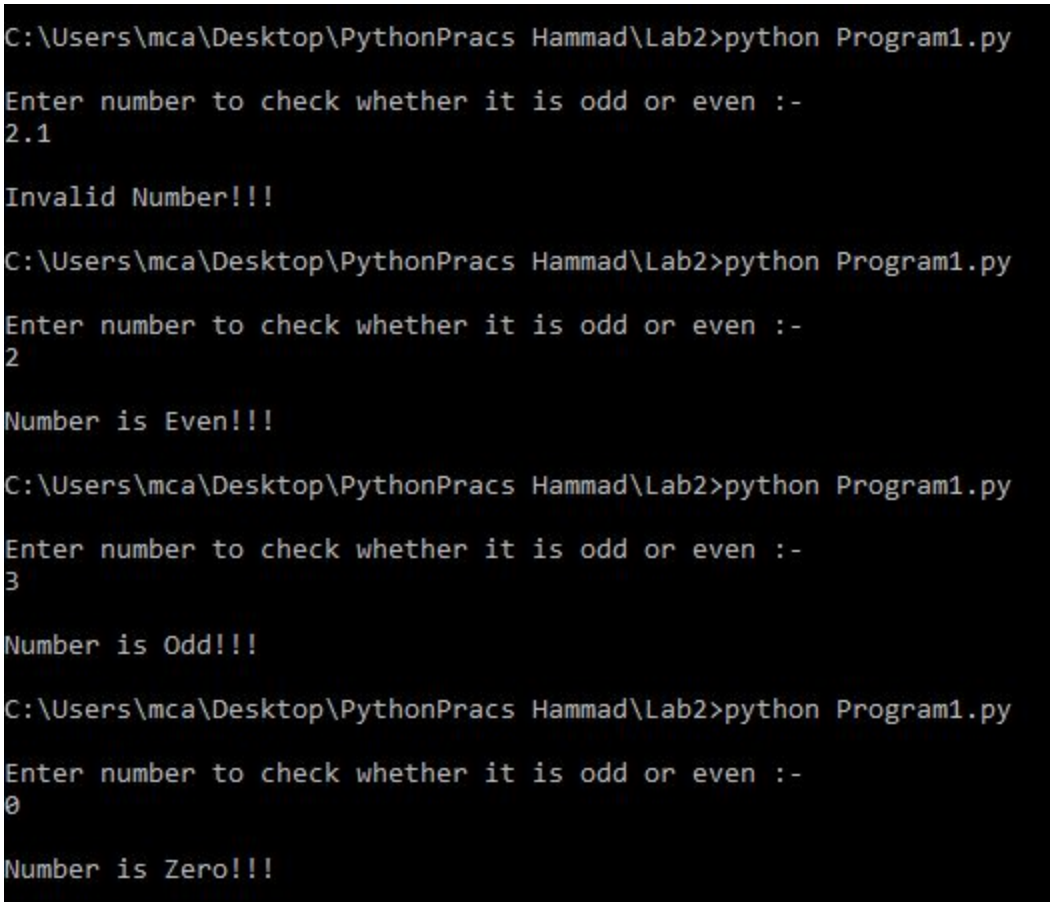
List of Program:

1) To check if the given number is even or odd.

Code:

```
number = float(input("\nEnter number to check whether it is odd or even :-\n"))

if number == 0:
        print("\nNumber is Zero!!!")
elif number % 2 == 0:
        print("\nNumber is Even!!!")
elif number % 2 == 1:
        print("\nNumber is Odd!!!")
else:
        print("\nInvalid Number!!!")
```

Screenshot:



2) Write a program to take in the marks of 5 subjects and display the grade.

Code :

```
print("Out of 100")

maths = float(input("Marks in Maths?\n"))
science = float(input("Marks in Science?\n"))
english = float(input("Marks in English?\n"))
computer = float(input("Marks in Computer?\n"))
history = float(input("Marks in History?\n"))

if maths<=100 and science<=100 and english<=100 and computer<=100 and
history<=100:
        s = "pass"
        sum = maths+science+english+computer+history
        total = 500.00
        p = (sum/total) * 100
        if maths<30 or science<30 or english<30 or computer<30 or history<30:
                s = "fail"
                print("Student is failed in at least one subject")
        elif s != "fail":
                if p>=80:
                        print("Grade 'O'")
                elif p>=70:
                        print("Grade 'A'")
                elif p>=60:
                        print("Grade 'B'")
                elif p>=50:
                        print("Grade 'C'")
                elif p>=30:
                        print("Grade 'D'")
                elif p<30:
                        print("'Fail'")
        print("Percentage = ",p)
else:
        print("Subject Marks are greater than 100, Program Closed!")
```

Screenshot:

```
C:\Users\mca\Desktop\PythonPracs Hammad\Lab2>python Program2.py
Out of 100
Marks in Maths?
34
Marks in Science?
34
Marks in English?
34
Marks in Computer?
34
Marks in History?
34
Grade 'D'
Percentage =  34.0

C:\Users\mca\Desktop\PythonPracs Hammad\Lab2>python Program2.py
Out of 100
Marks in Maths?
23
Marks in Science?
23
Marks in English?
23
Marks in Computer?
23
Marks in History?
23
Student is failed in at least one subject
Percentage =  23.0
```

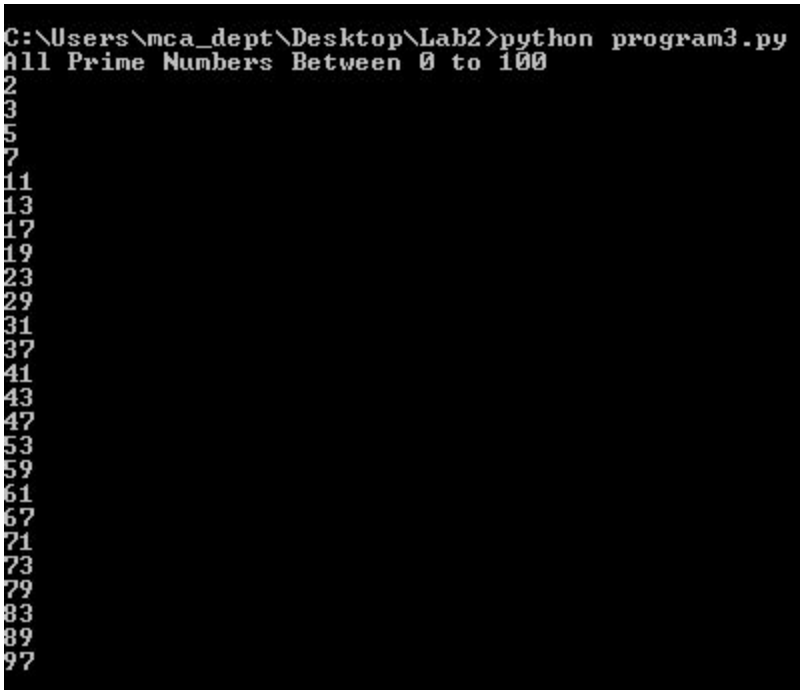
3) To find all the prime numbers in the interval 0 to 100.

Code:

```
flag = 0
high = 100
low = 0

print("All Prime Numbers Between {0} to {1}".format(low,high))

for n in range(low, high+1):
    if n > 1:
        flag = 0
        for i in range(2,(n//2+1)):
            if(n%i) == 0:
                flag = flag + 1
```

```
                break
    if flag == 0:
            print("%d"%n)
```

Screenshot :



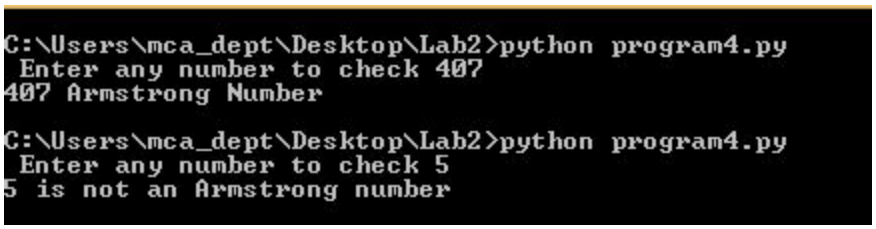
4) To check if the given number is Armstrong or not.

Code :

```
n = int(input(" Enter any number to check "))

sum = 0

temp = n
count = 0

while(temp>0):
        temp //= 10
        count = count + 1

temp = n
```

```
while(temp>0):
        t = temp%10
        sum += t**count
        temp //= 10

if n==sum :
        print("%d Armstrong Number"%n)
else:
        print(n,"is not an Armstrong number")
```

Screenshot:



5) To check if the given char is vowel or consonant.

Code :

```
ch = input("Enter a character: ")

if(ch=='A' or ch=='a' or ch=='E' or ch =='e' or ch=='I' or ch=='i' or ch=='O' or ch=='o' or
ch=='U' or ch=='u'):
   print(ch, "is a Vowel")
else:
   print(ch, "is a Consonant")
```

Screenshot:

```
C:\Users\mca_dept\Desktop\Lab2>notepad program5.py

C:\Users\mca_dept\Desktop\Lab2>python program5.py
Enter a character: A
A is a Vowel

C:\Users\mca_dept\Desktop\Lab2>python program5.py
Enter a character: a
a is a Vowel

C:\Users\mca_dept\Desktop\Lab2>python program5.py
Enter a character: e
e is a Vowel

C:\Users\mca_dept\Desktop\Lab2>python program5.py
Enter a character: d
d is a Consonant

C:\Users\mca_dept\Desktop\Lab2>python program5.py
Enter a character: y
y is a Consonant

C:\Users\mca_dept\Desktop\Lab2>python program5.py
Enter a character: i
i is a Vowel

C:\Users\mca_dept\Desktop\Lab2>python program5.py
Enter a character: I
I is a Vowel
```

6) To add two matrices.

Code :

```
import numpy as np

x = int(input("Enter number of rows\n"))
y = int(input("Enter number of columns\n"))

A = np.zeros( (x, y) )

B = np.zeros( (x, y) )

print("Enter elements for matrix A")

for i in range (len(A)):
        for j in range (len(A[0])):
                A[i][j] = input('Enter Element {} x {} = '.format(i+1, j+1))

print("Enter elements for matrix B")

for i in range (len(B)):
        for j in range (len(B[0])):
```

```
            B[i][j] = input('Enter Element {} x {} = '.format(i+1, j+1))

    C = A + B

    print(A)

    print("+")

    print(B)

    print("=")

    print(C)
```

Screenshot:

```
C:\Users\mca_dept\Desktop\Lab2>python program6.py
Enter number of rows
4
Enter number of columns
4
Enter elements for matrix A
Enter Element 1 x 1 = 1
Enter Element 1 x 2 = 2
Enter Element 1 x 3 = 3
Enter Element 1 x 4 = 4
Enter Element 2 x 1 = 5
Enter Element 2 x 2 = 6
Enter Element 2 x 3 = 7
Enter Element 2 x 4 = 8
Enter Element 3 x 1 = 9
Enter Element 3 x 2 = 10
Enter Element 3 x 3 = 11
Enter Element 3 x 4 = 12
Enter Element 4 x 1 = 13
Enter Element 4 x 2 = 14
Enter Element 4 x 3 = 15
Enter Element 4 x 4 = 16
Enter elements for matrix B
Enter Element 1 x 1 = 16
Enter Element 1 x 2 = 15
Enter Element 1 x 3 = 14
Enter Element 1 x 4 = 13
Enter Element 2 x 1 = 12
Enter Element 2 x 2 = 11
Enter Element 2 x 3 = 10
Enter Element 2 x 4 = 9
Enter Element 3 x 1 = 8
Enter Element 3 x 2 = 7
Enter Element 3 x 3 = 6
Enter Element 3 x 4 = 5
Enter Element 4 x 1 = 4
Enter Element 4 x 2 = 3
Enter Element 4 x 3 = 2
Enter Element 4 x 4 = 1
[[ 1.  2.  3.  4.]
 [ 5.  6.  7.  8.]
 [ 9. 10. 11. 12.]
 [13. 14. 15. 16.]]
+
[[16. 15. 14. 13.]
 [12. 11. 10.  9.]
 [ 8.  7.  6.  5.]
 [ 4.  3.  2.  1.]]
=
[[17. 17. 17. 17.]
 [17. 17. 17. 17.]
 [17. 17. 17. 17.]
 [17. 17. 17. 17.]]
```

7) To convert month name to a number of days.

   Code :

   ```
   print("Months :
   \n1)January\n2)February\n3)March\n4)April\n5)May\n6)June\n7)July\n8)August\n9)Sept
   ember\n10)October\n11)November\n12)December")
   ```

```
s = input("Enter any month to know number of days \n")

if s == "February":
        print("Number of days = 28/29")

elif s == "January" or s == "January" or s == "March" or s == "May" or s == "July" or s ==
"August" or s == "October" or s == "December":
        print("Number of days = 31")
elif s == "April" or s == "June" or s == "September" or s == "November":
        print("Number of days = 30")
else :
        print("Invalid Month")
```

Screenshot:

```
Number of days = 28/29

C:\Users\mca_dept\Desktop\Lab2>python program7.py
Months :
1)January
2)February
3)March
4)April
5)May
6)June
7)July
8)August
9)September
10)October
11)November
12)December
Enter any month to know number of days
August
Number of days = 31

C:\Users\mca_dept\Desktop\Lab2>python program7.py
Months :
1)January
2)February
3)March
4)April
5)May
6)June
7)July
8)August
9)September
10)October
11)November
12)December
Enter any month to know number of days
November
Number of days = 30

C:\Users\mca_dept\Desktop\Lab2>python program7.py
Months :
1)January
2)February
3)March
4)April
5)May
6)June
7)July
8)August
9)September
10)October
11)November
12)December
Enter any month to know number of days
asdb
Invalid Month
```

8) To check the validity of password input by users :
    a) At least 1 letter between [a-z] and 1 letter between [A-Z].
    b) At least 1 number between [0-9].
    c) At least 1 character from [$#@].
    d) Minimum length 6 characters.
    e) Maximum length 16 characters.

Code :

```
import re

count = 3

while count>0:
    print("Number of attemps : ",count)
    pw = input("Enter password \n")
    flag = 0
    while True:

        if(len(pw)<6):
            flag = 1
            break
        if(len(pw)>16):
            flag = 1
            break
        elif not re.search("[a-z]", pw):
            flag = 1
            break
        elif not re.search("[A-Z]", pw):
            flag = 1
            break
        elif not re.search("[0-9]", pw):
            flag = 1
            break
        elif not re.search("[#$@]", pw):
            flag = 1
            break
        else :
            flag = 0
            count = 0
            print("Valid password")
            break

    if( flag == 1):
        print("Invalid password")
        print(flag)
        count-=1
```

Screenshot:

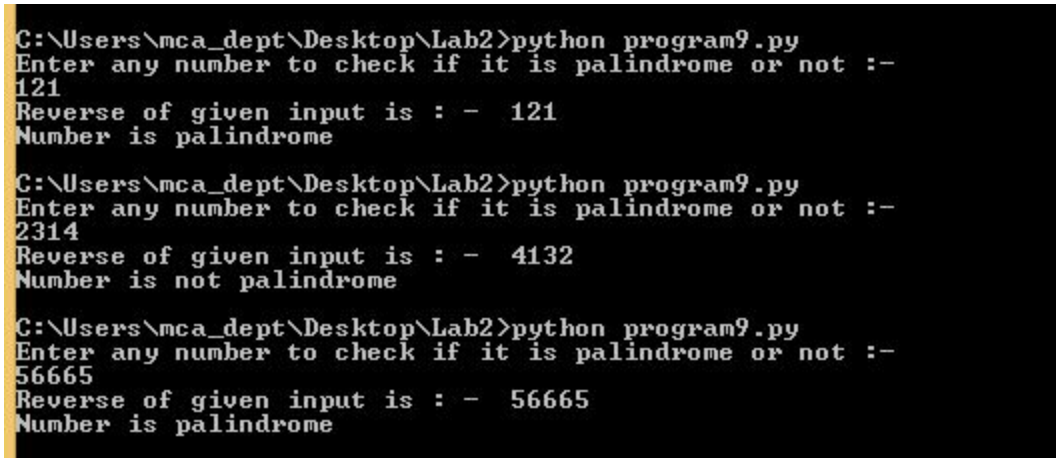
```
C:\Users\mca_dept\Desktop\Lab2>python program8.py
Number of attemps :  3
Enter password
as
Invalid password
1
Number of attemps :  2
Enter password
asd
Invalid password
1
Number of attemps :  1
Enter password
Maulika@123
Valid password

C:\Users\mca_dept\Desktop\Lab2>python program8.py
Number of attemps :  3
Enter password
Maulika@123
Valid password

C:\Users\mca_dept\Desktop\Lab2>python program8.py
Number of attemps :  3
Enter password
Ham@123
Valid password

C:\Users\mca_dept\Desktop\Lab2>_
```

9) To check if a number is palindrome or not.

Code :

```
n = int(input("Enter any number to check if it is palindrome or not :-\n"))

rev = 0
temp = n

while(temp>0):
        rev = rev * 10
        rev = rev + (temp % 10)
        temp = temp // 10

print("Reverse of given input is : - ",rev)

if(rev == n):
        print("Number is palindrome")
else:
        print("Number is not palindrome")
```

Screenshot:


C:\Users\mca_dept\Desktop\Lab2>python program9.py
Enter any number to check if it is palindrome or not :-
121
Reverse of given input is : - 121
Number is palindrome
C:\Users\mca_dept\Desktop\Lab2>python program9.py
Enter any number to check if it is palindrome or not :-
2314
Reverse of given input is : - 4132
Number is not palindrome
C:\Users\mca_dept\Desktop\Lab2>python program9.py
Enter any number to check if it is palindrome or not :-
56665
Reverse of given input is : - 56665
Number is palindrome