

**Example:**

# Write a program to print 1 2 3 4 5 6 7 8 9 10

# 1 2 3 4 5 6 7 8 9 10

# num=1

num=1 # init statement

while num<=10: # condition

print(num,end=' ')

num=num+1 # update

print()

# Write a program to print 10 9 8 7 6 5 4 3 2 1

num=10

while num>=1:

print(num,end=' ')

num=num-1

print()

# Write a program to print 2 4 6 8 10 12 14 16 18 20

num=2

while num<=20:

print(num,end=' ')

num=num+2

print()

# Write a program to print 1 3 5 7 9 11 13 15 17 19

num=1

while num<=19:

print(num,end=' ')

num=num+2

```
print()
```

**Example:**

```
# Write a program to input 10 numbers and print sum and avg
```

```
c=1
s=0
while c<=10:
    num=int(input("Enter any Number "))
    s=s+num
    c=c+1
```

```
print(f'Sum is {s}')
print(f'Avg is {s/10:.2f}')
```

**Output:**

```
Enter any Number 10
Enter any Number 20
Enter any Number 30
Enter any Number 40
Enter any Number 50
Enter any Number 60
Enter any Number 70
Enter any Number 80
Enter any Number 90
Enter any Number 100
Sum is 550
Avg is 55.00
```

**Example:**

```
# Write a program to find length of number
# 456 --> 3
```

```
# 12 --> 2
# 68245 --> 5
```

```
num=int(input("Enter any number "))
```

```
c=0
```

```
while num>0:
```

```
    num=num//10
```

```
    c=c+1
```

```
print(f'Length of number is {c}')
```

### **Output:**

Enter any number 678943

Length of number is 6

### **Example:**

# Write a program to print sum of digits of input number

```
# 456 --> 4+5+6 --> 15
```

```
num=int(input("Enter any number "))
```

```
s=0
```

```
while num>0:
```

```
    r=num%10
```

```
    s=s+r
```

```
    num=num//10
```

```
print(f'Sum of digits {s}')
```

**Example:**

# Write a program to find input number is armstrong or not

```
num=int(input("Enter any number "))  
num1=num
```

```
s=0  
while num>0:  
    r=num%10  
    s=s+(r**3)  
    num=num//10
```

```
if s==num1:  
    print(f'{num1} is armstrong number')  
else:  
    print(f'{num1} is not armstrong number')
```

**Output:**

```
Enter any number 153  
153 is armstrong number
```

```
Enter any number 123  
123 is not armstrong number
```

**Example:**

# Write a program to reverse input number

```
num=int(input("Enter any number "))  
num1=num  
rev=0
```

```

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

print(f'Reverse Number {rev}')
if num1==rev:
    print(f'{num1} is pal')
else:
    print(f'{num1} is not pal')

```

### Output:

Enter any number 123  
Reverse Number 321  
123 is not pal

Enter any number 121  
Reverse Number 121  
121 is pal

Q5. Write a program to accept a number and check whether it is a perfect number or not.

(Perfect number is a positive integer which is equal to the sum of its divisors like divisors of 6 are 1,2,3, and

sum of divisors is also 6, so 6 is the perfect number)

```
num=int(input("Enter any number ")) # 6
```

```

s=0
i=1
while i<num:
    if num%i==0:
        s=s+i

```

```
i=i+1
```

```
if num==s:  
    print(f'{num} is perfect number ')  
else:  
    print(f'{num} is not perfect number')
```

### **while ...else**

This syntax is used to repeat while loop at least one time

#### **Syntax:**

```
while <condition>/<boolean-expr>:  
    statement-1  
    statement-2  
else:  
    statement-3  
    statement-4
```

while block is repeated until given condition is True  
if condition is False, PVM execute else block