



# Computer Science



```
r = input("enter any radius of the circle")
a = 3.14*r*r
print "Area=",a
```

output:

```
enter any radius of the circle7
Area = 153.86
```

In the above program, all three statements are executed one after another.

**Selective Statements:** In this program, some portion of the program is executed based upon the conditional test. If the conditional test is true, compiler will execute some part of the program, otherwise it will execute other part of the program. This is implemented in python using if statement.

**Syntax:**

if (condition):		if (condition):
statements		statements
else	(or)	elif (condition):
statements		statements
		else:
		Statements

**Example:**

1. Program to find the simple interest based upon number of years. If number of years is more than 12 rate of interest is 10 otherwise 15.

**Code:**

```
p = input("Enter any principle amount")
t = input("Enter any time")
if (t>10):
    si = p*t*10/100
else:
    si = p*t*15/100
print "Simple Interest = ",si
```

output:

```
Enter any principle amount 3000
Enter any time 12
Simple Interest = 3600
```



2. Write a program to input any choice and to implement the following.

**Choice      Find**

1.            Area of square
2.            Area of rectangle
3.            Area of triangle

**Code:**

```
c = input("Enter any Choice")
if(c==1):
    s = input("enter any side of the square")
    a = s*s
    print"Area = ",a
elif(c==2):
    l = input("enter length")
    b = input("enter breadth")
    a = l*b
    print"Area = ",a
elif(c==3):
    x = input("enter first side of triangle")
    y = input("enter second side of triangle")
    z = input("enter third side of triangle")
    s = (x+y+z)/2
    A = ((s-x)*(s-y)*(s-z))**0.5
    print"Area=",A
else:
    print "Wrong input"
```

Output:

```
Enter any Choice2
enter length4
enter breadth6
Area = 24
```

**Iterative statements:** In some programs, certain set of statements are executed again and again based upon conditional test. i.e executed more than one time. This type of execution is called looping or iteration. Looping statement in python is implemented by using 'for' and 'while' statement.



# Computer Science



Syntax: (for loop)

```
for variable in range(start,stop+1,step):  
    statements
```

Syntax: (while loop)

```
while (condition):  
    Statements
```

## Example:

1. Write a program to input any number and to print all natural numbers up to given number.

### Code:

```
n = input("enter any number")  
for i in range(1,n+1):  
    print i,
```

Output:

```
enter any number10  
1 2 3 4 5 6 7 8 9 10
```

2. Write a program to input any number and to find sum of all natural numbers up to given number.

### Code:

```
n = input("Enter any number")  
sum=0  
for i in range(1,n+1):  
    sum = sum+i  
print "sum=",sum
```

Output:

```
Enter any number5  
sum = 15
```

3. Write a program to input any number and to find reverse of that number.

### Code:

```
n = input("Enter any number")  
r = 0  
while(n>0):  
    r = r*10+n%10  
    n = n/10
```



```
print "reverse number is", r
```

Output:

```
>>>
```

```
Enter any number345
```

```
reverse number is 543
```

```
>>>
```

**Example:** Write the output from the following code:

```
1. sum = 0
   for i in range(1,11,2):
       sum += i
   print "sum = ", sum
output:
sum = 25
```

```
2. sum = 0
   i = 4
   while (i <= 20):
       sum += i
       i += 4
   print "Sum = ", sum
output:
Sum = 60
```

**Example:** Interchange for loop into while loop

```
1. for i in range(10,26,2):
    print i
Ans:
i=10
while(i<26):
    print i
    i+=2

2. s=0
   for i in range(10,50,10):
       s += i
```



# Computer Science



```
print "Sum= ", s
```

Ans:

```
s = 0
```

```
i = 10
```

```
while(i<50):
```

```
    s += i
```

```
    i += 10
```

```
print "Sum=", s
```

Example: Interchange while loop in to for loop.

```
i = 5
```

```
s = 0
```

```
while (i<25):
```

```
    s += i
```

```
    i += 5
```

```
print "Sum =", s
```

Ans:

```
s = 0
```

```
for i in range(5,25,5):
```

```
    s += i
```

```
print "Sum = ", s
```

**Example:** How many times following loop will execute.

1. 

```
for i in range(10,50,5):
```

```
    print i
```

Ans:

i values are 10,15,20,25,30,35,40,45

8 times

2. 

```
i=4
```

```
while(i<25):
```

```
    print i
```

```
    i += 4
```

Ans:

i values are 4,8,12,16,20,24

6 times