# If-endif-else statements

```
if(condition1):
    statements
elif(condition2):
    statements
elif(condition3):
    statements
else:
    statements
```

Programs:

1) Program to check username and password is correct or not. (User:Admin, Password:123)
Ans:
```
username=input("Enter the username: ")
password=int(input("enter the password: "))
if(username=="Admin" and password==123):
    print("Username and password are correct")
else:
    print("Wrong log-in details")
```

2) Program to check eligibility for the senior citizen concession. (Age>65 years)
Ans:
```
age=int(input("enter your age:"))
if(age>65)
    print("Person is eligible for senior citizen concession")
else:
    print("Person is not eligible for senior citizen concession")
```

3) Program to check a student is pass or fail. (Student must secure 33 marks in each subject and there are five subjects)
Ans:
```
eng=int(input("Enter marks for English:"))
hin=int(input("Enter marks for Hindi:"))
maths=int(input("Enter marks for Maths:"))
```

```python
sci=int(input("Enter marks for Science:"))
sst=int(input("Enter marks for Social Science:"))


    if(eng>33 and hin>33 and maths>33 and sci>33 and sst>33):

        print("Student is pass")

    else:

        print("Student is fail")
```

**OR**

```python
    if(eng<33 or hin<33 or maths<33 or sci<33 or sst<33):

        print("Student is fail")

    else:

        print("Student is pass")
```

4) **Program to check whether the number is one digit, two-digit or three-digit number.**

Ans:
```python
num=int(input("Enter a number:"))
if(num>=0 and num<10):
    print(num, "is one-digit number")
elif(num>=10 and num<100):
    print(num, "is two-digit number")
elif(num>=100 and num<1000):
    print(num, "is three-digit number")
else:
    print("Number is more than three-digit or negative")
```

5)

WAP to enter Bill amount and ask the user the payment mode and give the discount based on payment mode. Also display net payable amount

| Mode | Discount |
|------|----------|
| Credit Card | 10% of bill amount |
| Debit Card | 5% of bill amount |
| Net Banking | 2% of bill amount |
| Otherwise | 0 |

Ans:
```python
bill=float(input("Enter bill amount:"))
mode=input("Enter the Mode of payment(C for Credit Card/D for Debit Card/N for Netbanking):")
if mode=='C' or mode=='c':
    disc=0.10*bill
```

```
   elif mode=='D' or mode=='d':
      disc=0.05*bill
   elif mode=='N' or mode=='n':
      disc=0.02*bill
   else:
      disc=0

   net=bill-disc
   print("Final (net) amount after discount: ",net)
```

6) **A transport company compute fares as follows :**

| Distance in Kilometers | Fare |
|---|---|
| 0-100 | Rs. 15 per km |
| 101-300 | Rs. 1500 plus Rs. 14.00 per km excess of 100 |
| 301-500 | Rs. 4300 plus Rs. 12.00 per km excess of 300 |
| 501 and above | Rs. 6700 plus Rs. 11.00 per km excess of 500 |

**Write a program to compute the different fares.**

**Ans:**

**distance=int(input("Enter distance travelled: "))**

**if(distance>0 and distance<=100):**

   **fare=distance*15**

**elif(distance>=101 and distance<=300):**

   **fare=1500+(distance-100)*14**

**elif(distance>=301 and distance<=500):**

   **fare=4300+(distance-300)*12**

**elif(distance>=501):**

   **fare=6700+(distance-500)*11**

**else:**
   **print("invalid distance")**

**print("Fare is:",fare)**

7) **A cloth showroom has announced the following seasonal discounts on the purchase of items :**

| Purchase Amount | Discount | |
| --- | --- | --- |
| | Mill Cloth | Handloom items |
| 0-1000 | – | 5% |
| 1001-2000 | 5% | 7.5% |
| 2001-3000 | 7.5% | 10.0% |
| Above 3000 | 10.0% | 15.0% |

**Write a program to compute the net amount to be paid by a customer.**

**Ans:**

amount=float(input("Enter the purchase amount: "))

cloth_type=input("Enter the type of cloth(M/H) – M for mill cloth and H for

    handloom items:")

if(amount>0 and amount<=1000):

  if(cloth_type=='M'):

   disc=0*amount


  if(cloth_type=='H'):

   disc=0.05*amount

 elif(amount>=1001 and amount<=2000):

  if(cloth_type=='M'):

   disc=0.05*amount

  if(cloth_type=='H'):

   disc=0.075*amount

elif(amount>=2001 and amount<=3000):

  if(cloth_type=='M'):

   disc=0.075*amount

  if(cloth_type=='H'):

   disc=0.10*amount

elif(amount>3000):

  if(cloth_type=='M'):

```
        disc=0.10*amount
    if(cloth_type=='H'):
        disc=0.15*amount
else:
    print("Invalid amount")
net_amount=amount-disc
print("Discounted amount is: ",net_amount)
```

8) Write a program that reads three positive numbers a, b, c and determines whether they can form the three sides of a triangle.
Hint: if((a+b)>c or (b+c)>a or (c+a)>b)

9) If the triangle is an acute angle triangle, determine further whether the triangle is equilateral, isosceles, or scalene. Write a program for this.
Hint: if((a==b) and(b==c))   #equ
if((a==b) or (b==c) or (c==a)) #iso
if(a!=b) and (a!=c) and (b!=c) ) #scalene

10)     A toy vendor supplies three types of toys: Battery Based Toys, Key-based Toys, and Electrical Charging Based Toys. The vendor gives a discount of 10% on orders for battery-based toys if the order is for more than Rs. 1000. On orders of more than Rs. 100 for key-based toys, a discount of 5% is given, and a discount of 10% is given on orders for electrical charging based toys of value more than Rs. 500. Assume that the numeric codes 1,2 and 3 are used for battery based toys, key-based toys, and electrical charging based toys respectively. Write a program that reads the product code and the order amount and prints out the net amount that the customer is required to pay after the discount.

```
Ans:
print("1. For Battery based Toys")
print("2. For Key based Toys")
print("3. Electric charging based Toys")
code = int(input("Enter the product code (1,2 or 3)?:"))
order_amount = int(input("Enter the amount:"))
if(code==1):
    if(order_amount>1000):
        disc=order_amount*0.10
    else:
        disc=0
elif(code==2):
    if(order_amount>100):
```

```
            disc=order_amount*0.05
    else:
            disc=0
  elif(code==3):
      if(order_amount>500):
            disc=order_amount*0.1
    else:
            disc=0
  else:
      print("Code is wrong")

   bill_amount=order_amount-disc
   print("Net payable bill amount is:",bill_amount)
```

**11)** A function f is defined as follows :

$$f(x) = ax^3 - bx^2 + cx - d, \qquad \text{if } x > k$$
$$= 0, \qquad \text{if } x = k$$
$$= -ax^3 + bx^2 - cx + d, \qquad \text{if } x < k$$

Write a program that reads a, b, c, d, k and x and prints the value of f(x).

Ans:

```
 a=int(input("Enter value for a: "))
 b=int(input("Enter value for b: "))
c=int(input("Enter value for c: "))
d=int(input("Enter value for d: "))
k=int(input("Enter value for k: "))
x=int(input("Enter value for x: "))
if(x>k):
     fx=a*x**3 - b*x**2+c*x-d
  elif(x==k):
     fx=0
  else:
     fx=-a*x**3 + b*x**2-c*x+d
  print("Function Value is: ",fx)
```

**12)** Write a program to do the following operations :
- Read any two positive integer numbers (say n1 & n2) and one character type operator (say opr). Note that opr is any mathematical operator.

- Depending upon the operator, do the appropriate operation. e. g. if opr is '+' then the display the value obtained by evaluating the expression (n1 + n2).

Ans:
```
n1=int(input("Enter first number: "))
n2=int(input("Enter second number: "))
opr=input("Enter an operator(+,-,*,/,**):")
if(opr=='+'):
    n3=n1+n2
elif(opr=='-'):
    n3=n1-n2
elif(opr=='*'):
    n3=n1*n2
elif(opr=='/'):
    n3=n1/n2
elif(opr=='%'):
    n3=n1%n2
else:
    print("Invalid operator")
print(n3)
```

13) The Paschim Gujarat Vij Company Ltd. computes the electricity bill based on the following matrix:

| Units Consumed | Charges |
|---|---|
| 0-100 | 0.50 per unit |
| 101-200 | Rs. 50 plus Rs. 1 per unit over 100 units |
| 201-300 | Rs. 150 plus 1.50 per unit over 200 units |
| > 300 | Rs. 300 plus Rs.2 per unit over 300 units |

Write a program to:
1. Ask user to enter the Past meter reading and current meter reading.
2. Find the units consumed.
3. Compute the bill according to given matrix.

Ans:
```
past=int(input("Enter past meter reading: "))
current=int(input("Enter current meter reading: "))
units=current-past
```

```
        if((units>0) and(units<=100)):
            charges=0.50*units
        elif(units>=101) and(units<=200)):
            charges=50+(units-100)*1
        elif(units>=201) and(units<=300)):
            charges=150+(units-200)*1.50
        else:
            charges=300+(units-300)*2
        print("Bill amount is: ",charges)
```

**14)** A transport company charges the fare according to following table:

| Distance | Charges |
|----------|-----------|
| 1-50 | 8 Rs./Km |
| 51-100 | 10 Rs./Km |
| > 100 | 12 Rs/Km |

Write a program to ask user to enter the distance and compute the fare.

**15)** The Sardar Patel Cricket Stadium, Motera has the following rates for different types of seats:
1. Ordinary – 2500
2. Pavillion – 3500
3. Upper Pavillion – 4500
4. Commentary Box – 6000
5. VIP – 8000

They are giving 10% discount for online booking and 8% discount for advance booking and no discount is given for booking on match day from ticket window.

1. Ask user to enter the booking type like online, advance or window booking.
2. Ask user to select the types of seats.
3. Compute the amount.

Ans:
```
book_type=input("Enter type of booking(O/A/W))
seat_type= int(input("Enter type of seat(1/2/3/4/5))
number=int(input("Enter total no of persons:"))
if(seat_type==1):
    rate=2500
    amount=rate*number
elif(seat_type==2):
```

```
        rate=3500
        amount=rate*number
    elif(seat_type==3):
        rate=4500
        amount=rate*number
    elif(seat_type==4):
        rate=6000
        amount=rate*number
    elif(seat_type==5):
        rate=8000
        amount=rate*number

    if(book_type=='O'):
        disc=amount*0.1
    elif(book_type=='A'):
        disc=amount*0.08
    elif(book_type=='W')
        disc=0

    net_amount=amount-disc
    print(net_amount)
```

16)     A cloth showroom has announced the following discounts on the purchase of specific items :

| Amount | Shorts | Pants | Shits/T-Shirts |
|--------|--------|-------|----------------|
| 0-100 | – | 3% | 5% |
| 101-200 | 5% | 8% | 10% |
| 201-300 | 10% | 12% | 15% |
| Above 300 | 18% | 20% | 22% |

Write a program to:
1. Ask user to enter the amount and assign following code for the items such as sh for shorts, p for pans and sht for shirts/t-shirts.
2. Compute the discount and net amount paid by customer.

17)     WAP to calculate the roots of a given quadratic equation $ax**2+bx+c=0$
    Ans:

```python
import math

a=int(input("Enter value of a:"))
b=int(input("Enter value of b:"))
c=int(input("Enter value of c:"))

d=b*b-4*a*c

if(d>0):
    x1=(-b+math.sqrt(d))/(2*a)
    x2=(-b-math.sqrt(d))/(2*a)
    print("The roots are real and unequal and given by",x1,x2)
elif(d==0):
    x=-b/(2*a)
    print("The roots are real and equal and given by",x)
else:
    print("The roots are imaginary")
```

**18)** WAP to input a digit from 1 to 10 and print it in words.

Ans:

```python
number=int(input("enter a number"))
if(number==1):
    print("One")
elif(number==2):
    print("Two")
-   -   -   -

-   -   -   -

elif(number==10):
    print("Ten")
else:
    print("Number out of range")
```

**19)** **Rewrite the following code fragment using if...elif..else statement:**

```python
color = input("Enter the color name:")
if (color=="red"):
    print("Arun House")
if(color=="blue"):
    print("Aditya House")
if(color=="yellow"):
    print("Ravi House")
if(color=="green"):
    print("Bhaskar House")
```

```
if(color!="red" or color!="blue" or color!="yellow" or color!="green")
    print("Not a valid color name!!!!")
```

Ans:

```
color = input("Enter the color name:")
if (color=="red"):
   print("Arun House")
elif(color=="blue"):
   print("Aditya House")
elif(color=="yellow"):
   print("Ravi House")
elif(color=="green"):
   print("Bhaskar House")
else:
   print("Not a valid color name!!!!")
```

**20)** **What will the output of the following code fragment when the input month is 7, 5, and 11?**

```
if month>=6 and month<=9:
  print("Term – I")
elif month<=10 and month>=3:
   print("Term – II")
else:
   print("Vacation")
```

Ans: When input is 7,output is Term-I
     When input is 5,output is Term-II
     When input is 11,output is Vacation