

Conditional Statements

If Statements

Q1) Python Program to check if a Number is Odd or Even

Program

```
# Python program to check if the input number is odd or even.  
# A number is even if division by 2 gives a remainder of 0.  
# If the remainder is 1, it is an odd number.
```

```
num = int(input("Enter a number: "))  
if (num % 2) == 0:  
    print("{0} is Even".format(num))  
else:  
    print("{0} is Odd".format(num))
```

Output 1

```
Enter a number: 43  
43 is Odd
```

Output 2

```
Enter a number: 18  
18 is Even
```

Q2) Python Program to Check Leap Year

- Check whether a year is leap year or not.
- We will use nested if...else to solve this problem.
- A leap year is exactly divisible by 4 except for century years (years ending with 00).
- The century year is a leap year only if it is perfectly divisible by 400.
 - **Example:** 2017 is not a leap year, 1900 is a not leap year, 2012 is a leap year, 2000 is a leap year

Program

```
# Python program to check if year is a leap year or not
```

```
year = 2000
```

```
# To get year (integer input) from the user
```

```
# year = int(input("Enter a year: "))
```

```
if (year % 4) == 0:
```

```
    if (year % 100) == 0:
```

```
        if (year % 400) == 0:
```

```
            print("{0} is a leap year".format(year))
```

```
        else:
```

```
            print("{0} is not a leap year".format(year))
```

```
    else:
```

```
        print("{0} is a leap year".format(year))
```

```
else:
```

```
    print("{0} is not a leap year".format(year))
```

Output

```
2000 is a leap year
```

Q3) Python Program to Find the Largest Among Three Numbers

- Using if else and display it.
- the three numbers are stored in `num1`, `num2` and `num3` respectively.
-

Program

```
# Python program to find the largest number among the three input
numbers

# change the values of num1, num2 and num3

# for a different result

num1 = 10
num2 = 14
num3 = 12

# uncomment following lines to take three numbers from user
#num1 = float(input("Enter first number: "))
#num2 = float(input("Enter second number: "))
#num3 = float(input("Enter third number: "))

if (num1 >= num2) and (num1 >= num3):
    largest = num1
elif (num2 >= num1) and (num2 >= num3):
    largest = num2
else:
    largest = num3

print("The largest number is", largest)
```

Output

The largest number is 14.0

Q3) Check if the number is positive or negative or zero and display an appropriate message", with If-elif

- Use if...elif...else
- When variable **num** is **positive**, Positive number is printed.
- If **num** is equal to 0, **Zero** is printed.
- If **num** is **negative**, Negative number is printed.
-

Program

```
num = 3.4
```

```
# Try these two variations as well:
```

```
# num = 0
```

```
# num = -4.5
```

```
if num > 0:
```

```
    print("Positive number")
```

```
elif num == 0:
```

```
    print("Zero")
```

```
else:
```

```
    print("Negative number")
```

Output

Positive number

Q4) Check if the number is positive or negative or zero and display an appropriate message", with Nested If

- Use if...elif...else statement inside another if...elif...else statement. This is called nesting in computer programming.
- Any number of these statements can be nested inside one another. Indentation is the only way to figure out the level of nesting. They can get confusing, so they must be avoided unless necessary.

Program

```
num = float(input("Enter a number: "))  
if num >= 0:  
    if num == 0:  
        print("Zero")  
    else:  
        print("Positive number")  
else:  
    print("Negative number")
```

Output 1

```
Enter a number: 5  
Positive number
```

Output 2

```
Enter a number: -1  
Negative number
```

Output 3

```
Enter a number: 0  
Zero
```

Q5) Price and Quantity , Multiple Statements in the if Block

Program

```
price = 50
quantity = 5
if price*quantity < 500:
    print("price*quantity is less than 500")
    print("price = ", price)
    print("quantity = ", quantity)
```

Output

```
price*quantity is less than 500
price = 50
quantity = 5
```

Q6) Price and Quantity, Nested if-elif-else Conditions

Program

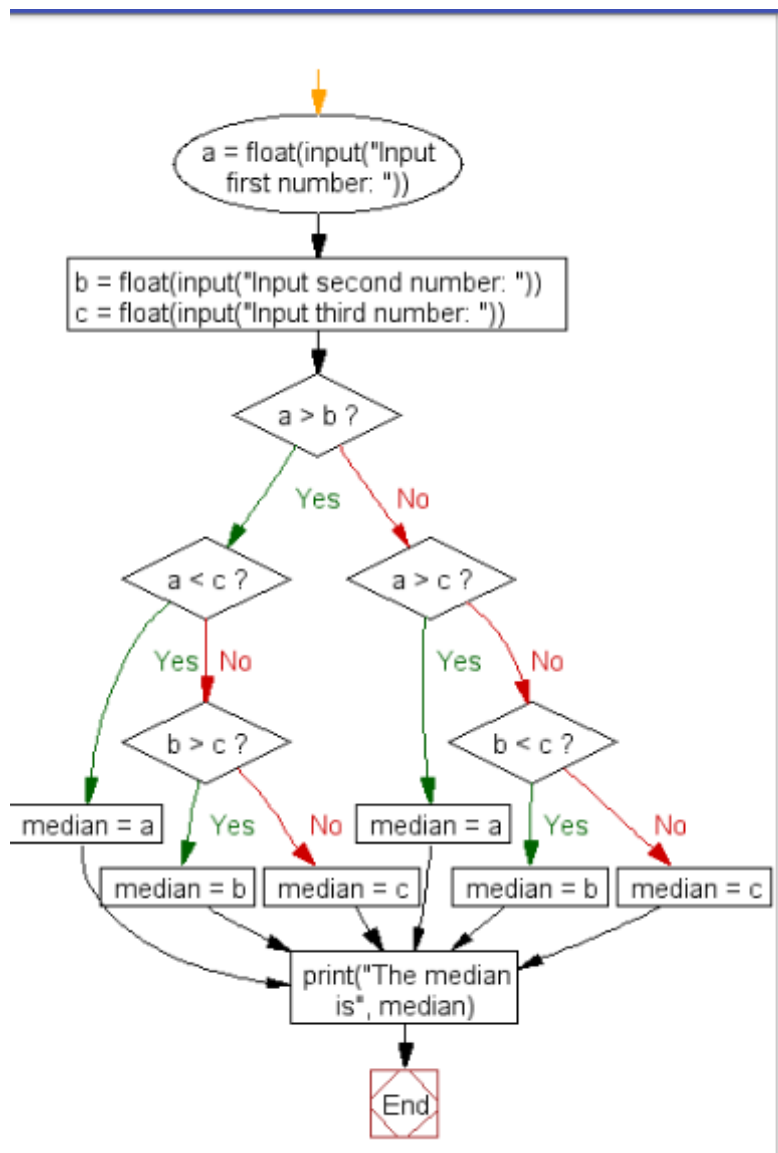
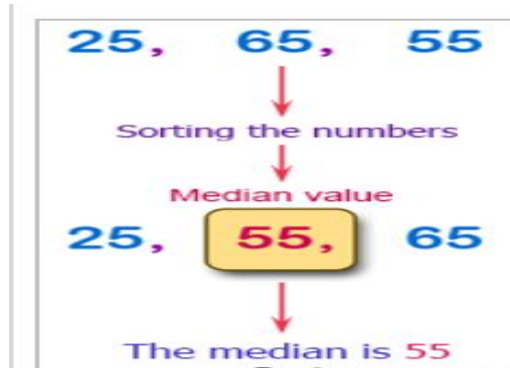
```
price = 50
quantity = 5
amount = price*quantity

if amount > 100:
    if amount > 500:
        print("Amount is greater than 500")
    else:
        if amount < 500 and amount > 400:
            print("Amount is")
        elif amount < 500 and amount > 300:
            print("Amount is between 300 and 500")
        else:
            print("Amount is between 200 and 500")
elif amount == 100:
    print("Amount is 100")
else:
    print("Amount is less than 100")
```

Output

Amount is between 200 and 500

Q7) Find the median of three values



Program

```
a = float(input("Input first number: "))
b = float(input("Input second number: "))
c = float(input("Input third number: "))
if a > b:
    if a < c:
        median = a
    elif b > c:
        median = b
    else:
        median = c
else:
    if a > c:
        median = a
    elif b < c:
        median = b
    else:
        median = c
print("The median is", median)
```

Output

```
Input first number: 25
Input second number: 55
Input third number: 65
The median is 55.0
```

**Q8) check value if percentage if greater than 33 print “Pass”
otherwise print “Fail”**

Program

```
Percentage=50  
if (percentage > 33):  
    print (“Pass”)  
else:  
    print(“Fail”)
```

Output

Pass

Q9) check value of percentage and print appropriate message

Program

```
Percentage=85
If (percentage >90):
    Print(“Outstanding”)
elif (percentage >80):
    print ( “Excellent”) e
lif (percentage >70):
    print ( “VeryGood”)
elif (percentage >60):
    print ( “Good”)
elif (percentage >33):
    print ( “Pass”) else
print(“Fail”)
```

Output

Excellent

Q10) Calculate tax for an item

Program

```
item_price = float(input("Please enter the price of your item.\n"))
tax = input("Is your item taxed(yes,no)?\n")
if tax=="yes":

    tax_rate = float(input("What is the sales tax percentage?\n"))
    item_price = item_price + item_price*tax_rate/100

print("Your total cost is $",item_price,".",sep="")
```

Output

```
Please enter the price of your item.
56
Is your item taxed(yes,no)?
yes
What is the sales tax percentage?
9
Your total cost is $61.04.
```

Q11) Calculate Quadratic Equation

- A common formula taught in Algebra I is the quadratic formula.
- It, sometimes this formula leads to "impossible" roots, which we later learn are "complex."
- In this program, given the coefficients of a quadratic equation from the user, if the roots are real, we will print them out.
- If they are not, we'll print out an error message
- The solutions of this quadratic equation is given by:

$$(-b \pm (b^2 - 4ac)^{0.5}) / 2a$$

Program

```
a = float(input("Please enter a from your quadratic equation.\n"))
b = float(input("Please enter b from your quadratic equation.\n"))
c = float(input("Please enter c from your quadratic equation.\n"))
disc = b**2 - 4*a*c
if disc >= 0:
    x1 = (-b + disc**.5)/(2*a)
    x2 = (-b - disc**.5)/(2*a)
    print("Your roots are ",x1," and ",x2,".", sep="")
else:
    print("Sorry, your roots are complex.")
```

Output

```
Please enter a from your quadratic equation.
5
Please enter b from your quadratic equation.
8
Please enter c from your quadratic equation.
3
Your roots are -0.6 and -1.0.
```