# Python 3.x

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# What we will cover today?

Assignment Solution

Python Syntax

If Else structure

Assignment

## Calculate Weight on Moon

- WeightOnEarth = input("Enter your weight on earth)
- WeightOnMoon = (16.5* WeightOnEarth) / 100
- print(WeightOnMoon)

## Calculate compound interest

- Principal = input("Enter principal amount")
- Int = input("Enter interest amount")
- Term = input("Enter term")
- Interest = Principal * [(1+Int/100)**Term – 1]
- print(Interest)

## Convert Seconds into Hours, Minutes and Seconds

- n = input("Please Enter Seconds")
- hr = n//3600
- rt = n%3600
- min = rt/60
- sec = rt%60
- print(hr,':',min,':',sec)

## Find total number of currency notes

- Amount = input("Please Enter Amount for Withdraw :")
- print "\n\nRequired notes of 100 is : " , Amount / 100
- print "Required notes of 50 is : " , (Amount % 100) / 50
- print "Required notes of 10 is : " , (((Amount % 100) % 50) / 10)
- print "Amount still remaining is : " , (((Amount % 100) % 50) % 10)

# Control Structures

**If Block -**
if *condition*:
   *statements*

**If Else Block -**
if *condition*:
   *statements*
else:
   *statements*

**If Else-If and Else Block -**
if *condition*:
   *statements*
[elif *condition*:
   *statements*] ...
else:
   *statements*

**Nested If Block -**
if *condition*:
   *statements*
    *if condition:*
       *statement*
    *else*
       *statement*
[elif *condition*:
   *statements*] ...
else:
   *statements*

# Control Structures - Examples

**If Block -**
```
if balance <= 200:
    print('low bank balance')
```

**If Else Block -**
```
if a % 5 == 0:
    print('Number is divisible by 5')
else:
 print('Number is not divisible by
    5')
```

**If Else-If and Else Block -**
```
if a % 2 == 0:
    print('Number is even')
elif a == 0:
    print('Number is zero')
else:
 print('Number is odd')
```

**Nested If Block -**
```
if sex='MALE':
    if age>45:
        print('Medical Checkup
required')
    else:
        print('Insurance Approved')
```

## Conditional Operators

== equal to operator
> greater than
>= greater than or equal to
< less than
<= less than or equal to
!= not equal to

## Exercise : If condition

Take a number as input. Print: "number is greater than 100" if number is greater than 100

- Take a number as input. Print: "number is greater than 100" if number is greater than 100

```
num = int(input('Enter a number'))
if num > 100:
        print('number is greater than 100')
```

# Exercise : If-ELSE condition

Input two numbers and find the largest number out of the two

Ask the user: "what is your name?" If name entered is same as your name, print, "I am mirror" else print "I am not a mirror"

- Input two numbers and find the largest number out of the two

```
num1 = int(input('enter number 1'))
num2 = int(input('enter number' 2))
if num1 > num2 :
        print(num1)
else:
        print(num2)
```

- Ask the user: "what is your name?" If name entered is same as your name, print, "I am mirror" else print "I am not a mirror"

```
name = input('What is your name')
if name=='Shalini':
        print('I am mirror')
else:
        print('I am not a mirror')
```

# Exercise : Nested If-ELSE condition

Chat bot 1:
Take favourite color as input

Print personality as per color
Red: passionate
Blue: loyal
Yellow: kind
Purple: royal
White: peace
Else: happy

# Exercise : Nested If-ELSE Solution

Chat bot 1:
Take favourite color as input

Print personality as per color
Red: passionate
Blue: loyal
Yellow: kind
Purple: royal
White: peace
Else: happy

```
color = input('Enter a color')
if color == 'Red':
        print('Passionate')
elif color == 'Blue':
        print('Loyal')
elif color == 'Yellow':
        print('Kind')
elif color == 'Purple':
        print('Royal')
elif color == 'White':
        print('Peace')
else:
        print('Happy')
```

# Logical Operators

and

| ArgumentA | ArgumentB | A and B |
|-----------|-----------|---------|
| False | False | False |
| False | True | False |
| True | False | False |
| True | True | True |

or

| ArgumentA | ArgumentB | A or B |
|-----------|-----------|--------|
| False | False | False |
| False | True | True |
| True | False | True |
| True | True | True |

Take a number as input
if it is divisible by 3 and by 5:
Print: number is divisible by 3 and 5
if it is divisible either by 3 or 5
Print: number is divisible either by 3 or by 5
else:
Print: number is not divisible by 3 and 5

Take a number as input
if it is divisible by 3 and by 5:
Print: number is divisible by 3 and 5
if it is divisible either by 3 or 5
Print: number is divisible either by 3 or by 5
else:
Print: number is not divisible by 3 and 5

```
n1 = int(input('enter a number'))
if n1%3 == 0 and n1%5 == 0:
        print(n1,'divisible by 3 and 5')
elif n1%3 == 0 or n1%5 == 0:
        print(n1,'divisible by 3 or 5')
else:
        print(n1,'not divisible by 3 and 5')
```

## Practice Program 1

Take theory_score and practical_score as input.
If sum of theory_score and practical score is greater than 100, print
"invalid score"
If total score is:
>90: Grade A
Between 70 and 90: Grade B
Between 50 and 70: Grade C
<50: Grade D
Print: Your over all score is ___ and your grade is ____.

## PRACTICE PROGRAM 1 SOLUTION

Take theory_score and practical_score as input.
If sum of theory_score and practical score is greater than 10
print "invalid score"
If total score is:
>90: Grade A
Between 70 and 90: Grade B
Between 50 and 70: Grade C
<50: Grade D
Print: Your over all score is ___ and your grade is ____.

```
theory_score = int(input('enter theory score'))
prac_score = int(input('enter theory score'))
total_score = theory_score + prac_score
if total_score > 100:
        print('Invalid Score')
elif total_score > 90:
        print('Your overall score is', total_score ,'and your grade is A')
elif total_score > 70 and total_score <=90 :
        print('Your overall score is', total_score ,'and your grade is B')
elif total_score > 50 and total_score <= 70:
        print('Your overall score is', total_score ,'and your grade is C')
else:
        print('Your overall score is', total_score ,'and your grade is D')
```

## Practice Program 2

Take a number as input. Write a program to print if a number is odd or even
Hint:
% => modulo operator => gives you the remainder of division of 2 numbers
E.g. 4%2=0 so 4 is even

## Practice Program 2 Solution

Take a number as input. Write a program to print if a number is odd or even
Hint:
% => modulo operator => gives you the remainder of division of 2 numbers
E.g. 4%2=0 so 4 is even

```python
no  = int(input('enter a number'))
if no%2==0:
        print('Even')
else:
        print('Odd')
```

# IF Else - ASSIGNMENT

- A certain grade of steel is graded according to the following conditions:

  Condition 1 - Hardness must be > 50

  Condition 2 - Carbon content must be < 0.7

  Condition 3 - Tensile strength must be > 5600

  The grades are as follows :

  Grade is 10 if all 3 conditions are met

  Grade is 9 if 1 & 2 conditions are met

  Grade is 8 if 2 & 3 conditions are met

  Grade is 7 if 1 & 3 conditions are met

  Grade is 6 if only 1 condition is met

  Grade is 5 if none of the conditions are met

- Write a Program to find whether a year entered is leap year or not
  Note : A leap year is the one that if divisible by 4 should not be divisible by 100.
  But if divisible by 100 should also be divisible by 400 else its not a leap year.
  Ex:          2000 -> Divisibe by 4, 100 and 400 – leap year
               1996 -> Divisible by 4 not 100 – leap year
               1900 -> Divisible by 4 and 100 but not 400 – not a leap year

- Write a program to take 3 numbers as inputs from user and find maximum of these numbers. If input is 34, 23, and 56 then maximum is 56

- Any character is entered through the keyboard. WAP to find whether the character entered is a capital letter , small case letter, digit or a special symbol.

# Any Question ?

TechGatha

Thank you !