

In [1]:

```
hours= input('How many hours?')
pay= input('How much per hour?')
total_pay = float(hours)*float(pay)
print ('The payment due is',total_pay)
```

```
How many hours?10
How much per hour?6
The payment due is 60.0
```

In [15]:

```
english= input('Enter your scores for English = ')
math= input('Enter your scores for Math = ')
sci=input('Enter your scores for Science = ')
percentage= (((float(english)+float(math)+float(sci))*100)/300)
print ('Your Calulated percentage is', percentage)
```

```
Enter your scores for English = 80
Enter your scores for Math = 95
Enter your scores for Science = 75
Your Calulated percentage is 83.33333333333333
```

In [37]:

```
#using simple if and else statement
x=input('What is 2+5')
x=int(x)
if x==7:
    print('Correct answer')
else:
    print ('Wrong Answer')
```

```
What is 2+5
Wrong Answer
```

In [60]:

```
#Using the elif statement
hours= input('How many hours?')
hours=float(hours)
pay= input('How much per hour?')
pay=float(pay)
if hours>40:
    total_pay = (40*pay)+((hours-40)*(1.5*pay))
elif hours<=40:
    total_pay = hours*pay
print ('The payment due is',total_pay)
```

```
How many hours?45
How much per hour?10.5
The payment due is 498.75
```

In [3]:

```
# using the try and except statements
hours= input('How many hours?')
try:
    hours=float(hours)
    print ('You are going good')
except:
    print ('You are going bad. Give me a number, please')
```

How many hours?11

You are going bad. Give me a number, please

Write a program to prompt for a score between 0.0 and 1.0. If the score is out of range, print an error. If the score is between 0.0 and 1.0, print a grade using the following table: Score Grade

= 0.9 A = 0.8 B = 0.7 C = 0.6 D < 0.6 F If the user enters a value out of range, print a suitable error message and exit. For the test, enter a score of 0.85.

In [5]:

```
#Calculating grade average using Python programming
score = input('Enter a score = ')
score = float(score)
if score >1.0:
    print('Out of range')
elif score >= 0.9:
    print('A')
elif score >=0.8:
    print('B')
elif score >=0.7:
    print('C')
elif score >=0.6:
    print('D')
elif score <0.6 and score >= 0.0:
    print('F')
else:
    print('The score is out of range')
```

Enter a score = 0.55

F

In [34]:

```
def hello():
    print('Hello, testing the function.')
```

In [35]:

```
print('This is the first function test')
hello()
print('Did it work?')
print('Yup')
```

This is the first function test
Hello, testing the function.
Did it work?
Yup

In [40]:

```
def addition (x,y,z):
    return x+y*z
```

In [12]:

```
def addition (x,y,z):
    w= x+y*z
    return w
```

In [13]:

```
addition(3,2,1)
```

Out[13]:

5

In [15]:

```
#Trying to use a function
x=input('Select a Country: ')
y= input('Enter your name: ')
def hello(x):
    if x=='france':
        return print('Bonjour ' + y)
    elif x== 'spain':
        return print('hola ' + y)
    else:
        return print('Hello ' + y + ' You are from ' + x + ' Good to know')
hello(x)
```

Select a Country: spain
Enter your name: rut
hola rut

In [2]:

```
x=input('Select a Country: ')
y= input('Enter your name: ')
if x=='france':
    print('Bonjour ' + y)
elif x== 'spain':
    print('hola ' + y)
else:
    print('Hello ' + y + ' You are from ' + x + ' Good to know')
```

Select a Country: france
Enter your name: rutanshu
Bonjour rutanshu

In [33]:

```
def greeting(x):
    if x=='france':
        return print('Bonjour ')
    elif x== 'spain':
        return print('hola ')
    else:
        return print('Hello ')
country =input('Select a Country: ')
name = input('Enter your name: ')
print (greeting(country), name)
```

Select a Country: spain
Enter your name: rut
hola
None rut

In [2]:

```
x = input("Enter hours: ")
y= input("Enter pay rate: ")
x = float(x)
y = float (y)
if y < 40:
    z = x * y
    print("The amount is ", z)
elif y > 40:
    z = (y*40)+ (1.5 * y * (x-40))
    print("The amount is ", z)
```

Enter hours: 45
Enter pay rate: 10.5
The amount is 472.5

In [14]:

```
x = input("Enter hours: ")
y = input("Enter pay rate: ")
try:
    x = float(x)
    y = float(y)
    if y < 40:
        z = x * y
        print("The amount is ", z)
    elif y > 40:
        z = (y*40)+ (1.5 * y * (x-40))
        print("The amount is ", z)
except:
    print("enter a valid number")
```

```
Enter hours: 45
Enter pay rate: 10.5
The amount is 472.5
```

Write a program to prompt the user for hours and rate per hour using `raw_input` to compute gross pay. Award time-and-a-half for the hourly rate for all hours worked above 40 hours. Put the logic to do the computation of time-and-a-half in a function called `compute_pay()` and use the function to do the computation. The function should return a value. Use 45 hours and a rate of 10.50 per hour to test the program (the pay should be 498.75). You should use `raw_input` to read a string and `float()` to convert the string to a number. Do not worry about error checking the user input unless you want to - you can assume the user types numbers properly. Do not name your variable `sum` or use the `sum()` function.

In [21]:

```
def compute_pay(h, p):
    if h>=40:
        return (40*p)+(p*1.5*(h-40))
    elif h>0 and h<40:
        return (h*p)

hours= input('Enter no. of hours= ')
hours = float(hours)
wage = input('Enter the wage per hour= ')
wage = float(wage)
amount= compute_pay(hours, wage)
print('The amount is ', amount)
```

```
Enter no. of hours= 45
Enter the wage per hour= 10.5
The amount is 498.75
```

In [1]:

```
n=5
while n>0:
    print(n)
    n=n-1
print('Over')
```

5
4
3
2
1
Over

In [2]:

```
while True:
    x=input('Say my Name: ')
    if x== 'Done':
        break
    print(x)
```

Say my Name: heena
heena
Say my Name: haah
haah
Say my Name: rahul
rahul
Say my Name: done
done
Say my Name: Done

In [4]:

```
i=[1,2,3,4,5]
for f in i:
    print (f)
```

1
2
3
4
5

Little bit of Statistics

In [1]:

```
import numpy as np
```

In [3]:

```
x=np.array([[3,8,2],[5,7,3]])
```

In [4]:

```
x
```

Out[4]:

```
array([[3, 8, 2],  
       [5, 7, 3]])
```

In [5]:

```
y= np.array([[3,6],[4,1],[7,9]])
```

In [6]:

```
y
```

Out[6]:

```
array([[3, 6],  
       [4, 1],  
       [7, 9]])
```

In [7]:

```
z=np.dot(x,y)
```

In [8]:

```
z
```

Out[8]:

```
array([[55, 44],  
       [64, 64]])
```

In [11]:

```
d=np.array([[1,2,3],[2,-1,1],[4,3,-1]])
```

In [14]:

```
np.linalg.det(d)
```

Out[14]:

```
40.000000000000014
```

In [15]:

```
a=np.array([[13,5],[2,4]])
```

In [16]:

```
np.linalg.eig(a)
```

Out[16]:

```
(array([ 14.,   3.]), array([[ 0.98058068, -0.4472136 ],  
                             [ 0.19611614,  0.89442719]]))
```

In [17]:

```
import pandas as pd
```

In [23]:

```
data = pd.read_excel('covariance.xlsx', sheetname = 'data' )
```

In [32]:

```
d= data.as_matrix().T
```

In [35]:

```
d
```

Out[35]:

```
array([[ 2.5,  0.5,  2.2,  1.9,  3.1,  2.3,  2. ,  1. ,  1.5,  1.1],
       [ 2.4,  0.7,  2.9,  2.2,  3. ,  2.7,  1.6,  1.1,  1.6,  0.9]])
```

In [36]:

```
c = np.cov(d)
```

In [37]:

```
eigen = np.linalg.eig(c)
```

In [38]:

```
eigen
```

Out[38]:

```
(array([ 0.0490834 ,  1.28402771]), array([[ -0.73517866, -0.6778734 ],
      [ 0.6778734 , -0.73517866]]))
```

In [8]:

```
# try and except once again with a check
x = input("Enter a number: ")
try:
    print("Does this print even for an invalid number?")
    print("Yes!! It does run.")
    x = float(x)
    print(x)
except:
    print("Please input a valid number")
```

Enter a number: 123

Does this print even for an invalid number?

Yes!! It does run.

123.0

In [24]:

```
def conv_float(x):  
    x = float(x)  
    return x  
  
x = input("Enter your age: ")  
x = conv_float(x)  
print("your birth year is:",2017-x )
```

Enter your age: 23
your birth year is: 1994.0

In [3]:

```
# while and break loop  
i = 1  
while i<5:  
    print("Greater than 1")  
    break  #because of this break it exits the loop else it will run forever in a Limb  
o !!  
print("done!!")
```

Greater than 1
done!!

In [8]:

```
# Definite Loop, For Loop  
x= [1,5]  
for i in x:  
    print(i)
```

1
5

Data Structures in Python

1) String

In [5]:

```
name = "banana"
```

In [6]:

```
name
```

Out[6]:

```
'banana'
```

In [7]:

```
name[3]
```

Out[7]:

```
'a'
```

In [8]:

```
substr = name[0:3]
```

In [9]:

```
substr
```

Out[9]:

```
'ban'
```

In [30]:

```
data = 'rutanshudesai@gmail.com is my email id'
```

In [31]:

```
str = data.find("@")
```

In [32]:

```
str
```

Out[32]:

```
13
```

In [16]:

```
str2 = data.find(" ")
```

In [17]:

```
str2
```

Out[17]:

```
23
```

In [19]:

```
substr = data[str:str2]
```

In [20]:

```
substr
```

Out[20]:

```
'@gmail.com'
```

In [19]:

```
x = '1 2 3'.split()
```

In [20]:

```
x
```

Out[20]:

```
['1', '2', '3']
```

In [33]:

```
data.replace('gmail','outlook')
```

Out[33]:

```
'rutanshudesai@outlook.com is my email id'
```

2) File:

In [13]:

```
x = open('InMail message.txt')
```

In [36]:

```
x
```

Out[36]:

```
<_io.TextIOWrapper name='InMail message.txt' mode='r' encoding='cp1252'>
```

In [14]:

```
x.read()
```

Out[14]:

```
'Hello Mr. Loy,\n\nI am Rutanshu Desai currently a Graduate student pursuing MS in Systems Engineering Management with a concentration in Business and Data Analytics from the University of Texas at Dallas. I have applied for the position of Data Analyst Intern found on the HUB career site. I am very passionate towards Analytics and have the necessary skills mentioned. I would really like to apply my gained knowledge and concepts on real Business challenges. \n\nPlease review my profile and I will follow for more information. Looking forward to hearing from you.\n\nThank You\n\nSince rely\nRutanshu Desai\n469.980.0924\nrutanshudesai@live.com'
```

In [15]:

```
y
```

Out[15]:

```
..
```

In [16]:

```
x = [1,2,3,4]
```

In [17]:

```
x.len()
```

```
-----  
-  
AttributeError                                Traceback (most recent call las  
t)  
<ipython-input-17-668087e549ef> in <module>()  
----> 1 x.len()
```

AttributeError: 'list' object has no attribute 'len'

In [18]:

```
len(x)
```

Out[18]:

4

In [21]:

```
import numpy as np
```

In [22]:

```
x = np.arange(1,5)
```

In [23]:

```
x
```

Out[23]:

```
array([1, 2, 3, 4])
```

In [28]:

```
y = np.arange(3,5)
```

In [30]:

```
for y in x:  
    print(y)
```

```
1  
2  
3  
4
```