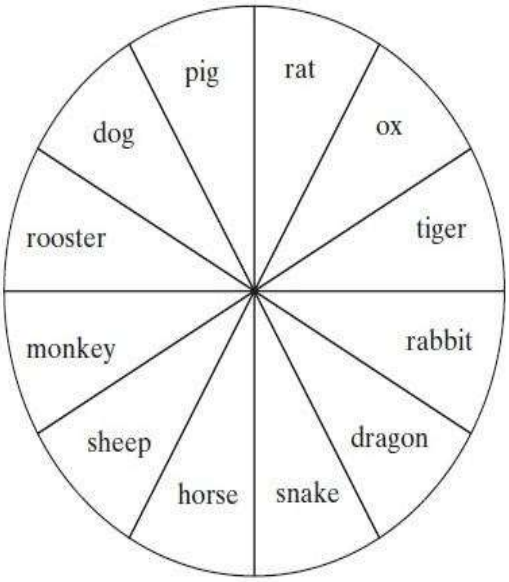
18K41A05F4

PE ASSIGNMENT-1

1. Develop a code for below scenario



year % 12 =
0: monkey
1: rooster
2: dog
3: pig
4: rat
5: ox
6: tiger
7: rabbit
8: dragon
9: snake
10: horse
11: sheep

```
>>> n=int(input('enter year'))
enter year2012
>>> if n%12==0:
...     print('monkey')
... elif n%12==1:
...     print('rooster')
... elif n%12==2:
...     print('dog')
... elif n%12==3:
...     print('pig')
... elif n%12==4:
...     print('rat')
... elif n%12==5:
...    print('ox')
... elif n%12==6:
...    print('tiger')
... elif n%12==7:
...    print('rabbit')
```

```
... elif n%12==8:
...   print('dragon')
... elif n%12==9:
...    print('snake')
... elif n%12==10:
...    print('horse')
... elif n%12==1:
...    print('sheep')
...
dragon
```

2)A Quick Fox Transport Co. wants to develop an application for calculating amount based on distance and weight of goods. The charges (Amount) to be calculated as per rates given below.

Input: Distance to be travel: 520

Weight of the goods: 50

Output: Amount to be charged: 3120 /-

Distance	Weight	Charges per Km.
>=500 Km	>=100 kg.	Rs. 5/-
	>=10 and <100 kg.	Rs. 6/-
	< 10 kg.	Rs. 7/-
<500 Km	>=100 Kg.	Rs.8/-
	<100 Kg.	Rs.5/-

```
>>> d=int(input('enter distance travelled'))
enter distance travelled520
>>> weight=int(input('enter weight of goods'))
enter weight of goods50
>>> if(d>=500):
...    if(weight>=100):
...      amount=d*5
...    elif(weight>=10 and weight<100):
...       amount=d*6
...    elif(weight<10):
...       amount=d*7
... elif(d<500):
...      if(weight>=100):
...         amount=d*8
...      elif(weight<100):
```

```
...         amount=d*5
...
>>> print(amount)
3120
>>>
```

3) The Entertainment Paradise

A theater in Delhi wants to develop a computerized Booking System. The theater offers different types of seats. The Ticket rates are- Stalls- Rs. 625/-, Circle- Rs.750/-, Upper Class- Rs.850/- and Box- Rs.1000/-. A discount is given 10% of total amount if tickets are purchased on Cash. In case of credit card holders 5% discount is given.

Input: Type of Seat: Circle

Payment mode: cash

Output: Cost of ticket: 675

```
>>> seattype=input('enter type of seat')
enter type of seatcircle
>>> payment mode=input('enter payment mode')
>>> paymentmode=input('enter payment mode')
enter payment modecash
>>> ic=int(input('enter initial cost of circle seat'))
enter initial cost of circle seat750
>>> if(paymentmode=='cash' and seattype=='circle'):
...   fc=ic-(ic*10/100)
... elif(paymentmode=='credit' and seattype=='circle'):
...    fc=ic-(ic*5/100)
...
>>> print(fc)
675.0
>>> int(fc)
675
>>>
```

4) Develop a program that calculates the energy needed to heat water from an initial temperature to a final temperature. Your program should prompt the user to enter the amount of water in kilograms and the initial and final temperatures of the water. The formula to compute the energy is

Q = M * (finalTemperature – initialTemperature) * 4184. where M is the weight of water in kilograms, temperatures are in degrees Celsius, and energy Q is measured in joules.

```
>>> weight=int(input('enter  weight of water in kg'))
enter  weight of water in kg40
>>> i=int(input('enter initial tempurate in celsius'))
enter initial tempurate in celsius20
>>> l=int(input('enter final tempurate in celsius'))
enter final tempurate in celsius35
>>> q=weight*(l-i)*4184
>>> print(q)
2510400
>>>
```

5) Develop a program that prompts user to enter month and print

a. “Winter ” - December ,January and February

b. “Spring” - March ,April and May

c. “summer”- June, July, August

d. “Autumn”- October, September, November

Computing Body Mass Index

You can use nested `if` *statements to write a program that interprets body mass index.*

Body Mass Index (BMI) is a measure of health based on height and weight. It can be calculated by taking your weight in kilograms and dividing it by the square of your height in meters. The interpretation of BMI for people 20 years or older is as follows:

BMI	Interpretation
BMI < 18.5	Underweight
18.5 ≤ BMI < 25.0	Normal
25.0 ≤ BMI < 30.0	Overweight
30.0 ≤ BMI	Obese

Write a program that prompts the user to enter a weight in pounds and height in inches and displays the BMI. Note that one pound is `0.45359237` kilograms and one inch is `0.0254` meters. Listing 3.4 gives the program.

```
>>> month=input('enter month')
enter month'winter'
>>> if(month=='winter'):
...   print("December, January and February")
... elif(month=='spring'):
...    print("March,April and May")
... elif(month=='summer'):
...    print("June ,July, August")
... elif(month=='autumn'):
...    print("__ september,October, November")
...
December, January and February
```

6) write a program that prompts the user to enter weight in pounds and height in inches and displays the BMI

```
>>> weight=int(input('enter your weight in kg'))
enter your weight in kg46
>>> height=float(input('enter your height in inches'))
enter your height in inches5.7
>>> height=float(height*0.0254)
>>> weight=float(weight*0.45359237)
>>> weight
0.529977325108
>>> height
0.14478
>>> Bmi=round(weight/height**2)
>>> Bmi
25
>>> if(Bmi<18.5):
...    print('underweight')
... elif(18.5<=Bmi<=25.5):
...    print('Normal')
... elif(25.5<=Bmi<=30.0):
...    print('Overweight')
... elif(30.0<=Bmi):
...    print('obese')
...
Normal
>>>
```

7) Write a program that reads an integer between 100 and 1000 and adds all the digits in the integer (ex: input 745 # output =16 (7+4+5))

```
>>> n=int(input('enter a number'))
enter a number745
>>> sum=0
>>> if(n>=100 and  n<=1000):
...     while(n>0):
...       riv=n%10
...       sum=sum+riv
...       n=n// 10
...
>>> print(sum)
16
>>>
```

8) Print all palindrome numbers between 1 to 1000.

```
>>> max=int(input('enter max value'))
enter max value1000
>>> for num in range(1,max):
...     temp=num
...     sum=0
...     while(temp>0):
...       riv=temp%10
...       sum=(sum*10)+riv
...       temp=temp //10
...       if(num==sum):
...         print(num)
...
1
2
3
4
5
6
7
8
9
11
22
33
44
```

55
66
77
88
99
101
111
121
131
141
151
161
171
181
191
202
212
222
232
242
252
262
272
282
292
303
313
323
333
343
353
363
373
383
393
404
414
424
434
444
454
464
474
484

494
505
515
525
535
545
555
565
575
585
595
606
616
626
636
646
656
666
676
686
696
707
717
727
737
747
757
767
777
787
797
808
818
828
838
848
858
868
878
888
898
909
919
929

```
939
949
959
969
979
989
999
```

9) Print all Armstrong numbers between 1 to 1000.

```
>>> max=int(input('enter the max range'))
enter the max range1000
>>>
>>> for n in range(1,max):
...    sum=0
...    temp=n
...    while(temp>0):
...      riv=temp%10
...      sum=sum+riv**3
...      temp=temp //10
...      if(n==sum):
...        print(n)
...
1
64
125
153
216
370
371
407
729
>>>
```

10) Write a Java program which iterates the integers from 1 to 100. For multiples of three print "Fizz" instead of the number and print "Buzz" for the multiples of five. When number is divided by both three and five, print "fizz buzz".

```
>>> for i in range(1,100):
...     if(i%3==0 and i%5==0):
...        print("Fizz Buzz")
...     elif(i%3==0):
...        print("Fizz")
...     elif(i%5==0):
```

```
...         print("Buzz")
...     else:
...         print(i)
...
1
2
Fizz
4
Buzz
Fizz
7
8
Fizz
Buzz
11
Fizz
13
14
Fizz Buzz
16
17
Fizz
19
Buzz
Fizz
22
23
Fizz
Buzz
26
Fizz
28
29
Fizz Buzz
31
32
Fizz
34
Buzz
Fizz
37
38
Fizz
Buzz
```

41
Fizz
43
44
Fizz Buzz
46
47
Fizz
49
Buzz
Fizz
52
53
Fizz
Buzz
56
Fizz
58
59
Fizz Buzz
61
62
Fizz
64
Buzz
Fizz
67
68
Fizz
Buzz
71
Fizz
73
74
Fizz Buzz
76
77
Fizz
79
Buzz
Fizz
82
83
Fizz

```
Buzz
86
Fizz
88
89
Fizz Buzz
91
92
Fizz
94
Buzz
Fizz
97
98
Fizz
>>>
>>>
```

11) Spider Problem: A spider present at the bottom of the well of height H, needs to get out of it, using the slippery wall of the well. It decides to climb up the well; it goes up U meters and slips down D meters in one single step. So, in each step it covers (U-D) meters, and if the spider gets out of the well by covering U meters in the last step it doesn't a slip back. For example, if the spider climbs up 5 meters and slips down by 3 meters in a single step, it covers (U - D) m in each step and 96 m in 48 steps, but in the 49th step it climbs up 5 m and reaches out of the well and it will not slip down and the step is counted as one step.

```
>>> h=int(input('enter the height of well'))
enter the height of well200
>>> u=int(input('enter the distance it goes'))
enter the distance it goes50
>>> d=int(input('enter the distance it slips'))
enter the distance it slips15
>>> dist=0
>>> step=0
>>> while(True):
...     dist=dist+u
...     step=step+1
...     if(dist>h):
...         break
...     dist=dist-d
...
>>> print(step)
```