Ch01_Introduction_ Part 2

September 5, 2018

1 Chapter 1 Control Statements

1.1 Control Statements

1.2 1) If Statements

```
In [13]: # Comparison operators
         x=5
         if x==5:
             print ('Equal 5')
         elif x>5:
             print ('Greater than 5')
         elif x<5:
             print ('Less than 5')
```

```
Equal 5
```

```
In [12]: # Identation
         x=5
         if x<2:
             print ("Bigger than 2")
             print (" X Value bigger than 2")

         print ("Now we are out of if block\n")
```

```
Now we are out of if block
```

```
In [14]: year=2000
         if year%4==0:
             print("Year(", year ,")is Leap")
         else:
             print (year , "Year is not Leap" )
```

```
Year( 2000 )is Leap
```

```
In [2]: a=10
        if a>=20:
            print ("Condition is True" )
        else:
            if a>=15:
                print ("Checking second value"  )
            else:
                print ("All Conditions are false" )
```

```
All Conditions are false
```

```
In [23]: # use the range statement
         for a in range (1,4):
                 print  ( a )
```

```
1
2
3
```

```
In [24]: # use the range statement
         for a in range (4):
                 print  ( a )
```

```
0
1
2
3
```

```
In [32]: ticket=4
         while ticket>0:
             print ("Your ticket number is ",ticket)
             ticket -=1
```

```
Your ticket number is  4
Your ticket number is  3
Your ticket number is  2
Your ticket number is  1
```

1.2.1 use break, continue and pass statements

```
In [44]: for letter in 'Python3':
             if letter == 'o':
                 break
             print (letter)
```

```
P
y
t
h
```

```
In [45]: a=0
         while a<=5:
             a=a+1
             if a%2==0:
                 continue
             print (a)
         print ("End of Loop"  )
```

```
1
3
5
End of Loop
```

```
In [46]: for i in [1,2,3,4,5]:
             if i==3:
                 pass
                 print ("Pass when value is",i  )
             print (i),
```

```
1
2
Pass when value is 3
3
4
5
```

1.3 Excercise , using try and except

Write a program to prompt the user for hours and rate per hour to compute gross pay, the program should gives employee 1.5 time the hourse worked above 30 hours Enter Hours: 50 Enter Rate: 10 Pay: 550.0

```
In [6]: Hflage=True
        Rflage=True
        while Hflage & Rflage :
            hours = input ('Enter Hours:')
            try:
                hours = int(hours)
                Hflage=False
            except:
                print ("Incorrect hours number !!!!")
```

```
            try:
                rate = input ('Enter Rate:')
                rate=float(rate)
                Rflage=False
            except:
                print ("Incorrect rate !!")

            if hours>40:
                pay= 40 * rate + (rate*1.5) * (hours-40)
            else:
                pay= hours * rate

            print ('Pay:',pay)
```

```
Enter Hours:50
Enter Rate:10
Pay: 550.0
```

```
In [14]: # Try and Except
         astr='Fujairah'
         errosms=''
         try:
             istr=int(astr)   # error
         except:
             istr=-1
             errosms="\nIncorrect entery"

         print ("Firs Try:", istr , errosms)
```

```
Firs Try: -1
Incorrect entery
```

```
In [15]: # Try and Except
         astr='12'
         errosms=''
         try:
             istr=int(astr)   # error
         except:
             istr=-1
             errosms="\nIncorrect entery"

         print ("Firs Try:", istr , errosms)
```

```
Firs Try: 12
```

1.3.1 Python Program to check if a Number is Positive, Negative or Zero

```
In [1]: Val = float(input("Enter a number: "))

        if Val > 0:
            print("{0} is a positive number".format(Val))
        elif Val == 0:
            print("{0} is zero".format(Val))
        else:
            print("{0} is negative number".format(Val))
```

```
Enter a number: -12
-12.0 is negative number
```

```
In [4]: # Check if a Number is Odd or Even
        val = int(input("Enter a number: "))
        if (val % 2) == 0:
            print("{0} is an Even number".format(val))
        else:
            print("{0} is an Odd number".format(val))
```

```
Enter a number: 13
13 is an Odd number
```

```
In [5]: # Write a python program that displays specific messages using the IF Statement:
        #It should ask the user to enter the age of a person, and then using a conditional state
        #it should print one of the following messages:
```

```
In [6]: age = int(input("Enter age of a person"))
        if(age < 13):
            print("This is a child")
        elif(age >= 13 and age <=17):
            print("This is a teenager")
        elif(age >= 18 and age <=59):
            print("This is an adult")
        else:
            print("This is a senior")
```

```
Enter age of a person40
This is an adult
```

```
In [7]: Speed = int(input("Enter your car speed"))
        if(Speed < 80):
            print("No Fines")
        elif(Speed >= 81 and Speed <=99):
            print("200 AE Fine ")
```

```
        elif(Speed >= 100 and Speed <=109):
            print("350 AE Fine ")
        else:
            print("500 AE Fine ")
```

```
Enter your car speed120
500 AE Fine
```

```
In [11]: 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))
```

```
Enter a year: 2000
2000 is a leap year
```

1.4 Print the Fibonacci sequence

```
In [14]: nterms = int(input("How many terms you want? "))
         # first two terms
         n1 = 0
         n2 = 1
         count = 2
         # check if the number of terms is valid
         if nterms <= 0:
             print("Plese enter a positive integer")
         elif nterms == 1:
             print("Fibonacci sequence:")
             print(n1)
         else:
             print("Fibonacci sequence:")
             print(n1,",",n2,end=', ')
             while count < nterms:
                 nth = n1 + n2
                 print(nth,end=' , ')
                 # update values
                 n1 = n2
                 n2 = nth
                 count += 1
```

```
How many terms you want? 8
Fibonacci sequence:
0 , 1, 1 , 2 , 3 , 5 , 8 , 13 ,
```

```
In [2]: largest = None
        print ('Before:', largest)
        for val in [30, 45, 12, 90, 74, 15]:
            if largest is None or val>largest:
                largest = val
                print ("Loop", val, largest)
        print ("Largest", largest)
```

```
Before: None
Loop 30 30
Loop 45 45
Loop 90 90
Largest 90
```