Class starts at 9:05 pm! Enjoy the song :)

```
'''
Recap
- DRY RUN - Running code line by line, we run the code just like the compiler does without usi
- Loops - instead of writing the code multiple times, we use loops to perform the same task
- Nested Loops - These are loops inside loops.
- We usually use i for rows and j for columns.
'''


#Need for Functions

********************
Transaction Complete
Thank you for visiting
********************


print("********************")
print("Transaction Complete")
print("Thank you for visiting")
print("********************")
```

```
********************
Transaction Complete
Thank you for visiting
********************
```

```
#Syntax of Defining a Function
def transaction_msg(): #definition of the name
  print("********************") #action
  print("Transaction Complete")
  print("Thank you for visiting")
  print("********************")

transaction_msg() #function call
print("Hi")
print("Hello")
transaction_msg()
```

```
********************
Transaction Complete
Thank you for visiting
********************
Hi
Hello
********************
Transaction Complete
Thank you for visiting
********************
```

```
#Return Statement
def area_circle(): #without return statement
  area=3.14*5*5
  print(area)

area_circle()
print(area)
```

```
78.5
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
/tmp/ipython-input-1959117587.py in <cell line: 0>()
      5
      6 area_circle()
----> 7 print(area)

NameError: name 'area' is not defined
```

Next steps: Explain error

```
def area_circle(): #without return statement
  area=3.14*5*5
  print(area)

print(area_circle())
```

```
78.5
None
```

```
def area_circle(): #with return statement
  area=3.14*5*5
  print(area)
  return area

print(area_circle())
```

```
78.5
78.5
```

```
def area_circle(): #with return statement
  area=3.14*5*5
  print(area)
  return area

area_circle()
```

```
78.5
78.5
```

```
#Parameter and Argument in Function
def area_circle(r):  #r is parameter
  area=3.14*r*r
  return area

print(area_circle(5))# 5 is an argument
print(area_circle(10)) # 10 is an argument
print(area_circle(5.5)) # 5.5 is an argument
```

```
314.0
94.985
```

```
#Execution of A Function in Python
'''
- Line by line
- call a function without defining -> error
- We can also call a function inside another function
- We can have multiple functions, we can call multiple functions,
we can pass multiple arguments to a function
'''


abc()
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
/tmp/ipython-input-3611915777.py in <cell line: 0>()
----> 1 abc()

NameError: name 'abc' is not defined
```

Next steps: Explain error

```
def pr(a,b):
  a=a+b
  return a

print(pr(4,7.8))
```

```
11.8
```

```
#Scope of a Variable
a=1 #global scope
def area_circle(r):
  area=3.14*r*r #local scope within the function
  return area #returns the value 314.0

b=area_circle(10) #global scope
print(a) #1
print(b) #314.0
print(area) #error
print(r) #local variable to function and hence wil give error
```

```
1
314.0
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
/tmp/ipython-input-2344901923.py in <cell line: 0>()
      8 print(a) #1
      9 print(b) #
---> 10 print(area) #error

NameError: name 'area' is not defined
```

Next steps: Explain error

```
a=1 #global
def abd():
  a=2 #local
  print(a) #2

abd()
print(a) #1
```

```
2
1
```

```
a=1
def abd():
  global a #use the global variable a not a new local var
  a=2
  print(a) #2

abd()
print(a) #2
a=a+5
print(a)
```

```
2
2
7
```

```
#Quiz 1
def foo():
  print(1)

foo() #1
foo() #2
for i in range(1,5): #1,2,3,4
    foo() #4
```

```
1
1
1
1
1
1
```

```
#Quiz 2
def area_rectangle(l, b): #l=3, b=4
    area = l * b #12
    return area

area_rectangle(3, 4)
print(area) #area is a local variable
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
/tmp/ipython-input-3803263361.py in <cell line: 0>()
      5
      6 area_rectangle(3, 4)
----> 7 print(area) #area is a local variable

NameError: name 'area' is not defined
```

Next steps: Explain error

```
#Quiz 3
def foo(a): #a=0
    if(a): #if(0) -> false
        return 100
    a += 20 #0+20 -> 20
    return a #20

print(foo(0)) #print(__20__)
```

```
20
```

```
#Quiz 4
def solve(a, b): #a=2, b=3
    print('Function Started') #Function Started
    return 0 #ends the function
    c = a + b
    print('Function Ends')

c = solve(2, 3) # c=__0__
print(c) #0
```

```
Function Started
0
```

```
'''
BREAK 10:12pm - 10:22 pm
```

Question - Simple Interest

Take two parameters, how much they want to invest, and how long they want to invest it for.

Simple interest - 7%.

Write a function print_interest

```
rate=7
p=int(input("how much they want to invest "))
t=float(input("how long they want to invest it for "))

def print_interest(p,t):
  result=p*t*rate/100
  return result

print(print_interest(p,t))
```

```
how much they want to invest62359
how long they want to invest it for7.8
34048.013999999996
```

Given a radius R, print the area of a circle but up to two decimal places only.

```
def area(r):
  a=3.14*r*r
  return round(a,2) #round is a predefined function with takes 2 values

print(area(7))
```

```
153.86
```

Positional and Keyword Arguments

```
def bio_data(name, age, gender): #name=23, age="Male", gender="Bharat"
  print("Name: ", name)
  print("Age: ", age)
  print("Gender: ", gender)

bio_data(23,"Male", "Bharat") #positional arguments
bio_data(23, "Male", "Bharat") #positional arguments
```

```
Name:  23
Age:  Male
Gender:  Bharat
```

```
def bio_data(name, age, gender):
  print("Name: ", name)
  print("Age: ", age)
  print("Gender: ", gender)

bio_data(name="Rahul", gender="Male",age=20) #keyword arguments
bio_data("Guna","Male",gender=23)
bio_data("Guna",age=23,"Male") #error
```

```
  File "/tmp/ipython-input-2681653671.py", line 8
    bio_data("Guna",age=23,"Male") #error
                                 ^
SyntaxError: positional argument follows keyword argument
```

Next steps: Explain error

Default and Non-default Arguments

```
def bio_data(name, age=0, gender="Unspecified"):  #Unspecified -> default
  print("Name: ", name)
  print("Age: ", age)
  print("Gender: ", gender)

bio_data("Anvesh",23)
```

```
Name:  Anvesh
Age:  23
Gender:  Unspecified
```

```
#Quiz 5: What is the correct way of calling this function?
def print_biodata(name, age, gender):
    print('Name', name)
    print('Age', age)
    print('Gender', gender)

#print_biodata('Hari', 'Male', 23)
#print_biodata('Male', 'Hari', 23)
print_biodata('Hari', 23, 'Male')  #correct
#print_biodata(23, 'Hari', 'Male')
```

```
Name Hari
Age 23
Gender Male
```

```
#Quiz 6
def print_biodata(name, age = 23, gender = 'Female'):
    print('Name', name)
    print('Age', age)
    print('Gender', gender)

print_biodata("Anushka")
```

```
Name Anushka
Age 23
```

```
    Gender Female
```

```
#Quiz 7: what is the correct call?
def print_biodata(name, age = 23, gender = 'Female'):
    print('Name', name)
    print('Age', age)
    print('Gender', gender)

print_biodata(name='Hari', 23) #postional after keyword -> no allowed
print_biodata('Hari', 23, age=23) #age gets parameters twice error
print_biodata('Hari') #this is fine
print_biodata() #no argumenet given, still need name value -> not valid
```

```
#Docstrings
'''
Python provides a special functionality doc strings just like comments but slightly different
If someone wants to know how the function works they have to come to the code and see. So many
You have to write a multiline comment right after the function definition.
'''
```

```
def bio_data(name, age = 23, gender = 'Female'):
  """
  This function prints the biodata using the information given by user

  Args:
    name
    age
    gender

  Return:
    None
  """
  print('Name', name)
  print('Age', age)
  print('Gender', gender)

bio_data?
print(bio_data.__doc__)
```

```
      This function prints the biodata using the information given by user

      Args:
        name
        age
        gender

      Return:
        None
```

DOUBTS

```
Start coding or generate with AI.
```

```
Start coding or generate with AI.
```