# Python Programming Course

## Assignment Questions – Day 2

***Assignment 1: Control Structures – Observations from a real world problem - Guided Activity***

**Problem Description:** A retail store management wants to automate the process of generating the bill amount for its customers. As an initial step, they want to initialize the bill details of a customer as given below:

Bill id should be 1001, customer id should be 101 and bill amount should be 199.99. After initializing, all the values must be displayed in the format given below:

bill_id: 1001

customer_id: 101

bill_amount: Rs.199.99

Suppose the retail store management now wants to provide 2% discount for all bill amounts above Rs.500 and for all other bill amount, a discount of 1%.

What do you think is needed to implement this scenario?

***Assignment 2: Control Structures - Demo***

**Problem Description:** Suppose the retail store management now wants to provide 2% discount for all bill amounts above Rs.500 and for all other bill amount, a discount of 1%. Write a Python program to implement the same?

***Assignment 3: Control Structures - Guided Activity***

**Problem Description:** Suppose the retail store management now wants to provide discount for all bill amounts as mentioned below.

***Assignment 4: Control Structures - Guided Activity***

**Problem Description:** Suppose the retail store management now wants to provide discount for all bill amounts as mentioned below.

Customers can be considered to be valid, if their customer id is between 101 and 1000(both inclusive).

For valid customers, discount must be provided as per the table given below:

| Bill Amount | Discount % |
|---|---|
| >=500 | 10 |

Assume for all other cases, discount is 0%.

**Note:** Display appropriate error messages wherever applicable. Write a Python Program to implement the same.

***Assignment 5: Control Structures – Hands – on – Practice***

**Problem Description:** The finance department of a company wants to calculate the monthly net pay of one of its employee by finding the income tax to be paid (in Indian Rupees) and the net salary after the income tax deduction. The employee should pay income tax if his monthly gross salary is more than Rs. 10,000 (Indian Rupees) and the percentage of income tax should be considered as 20% of the gross salary. Display the employee id, basic salary, allowances, gross pay, income tax and net pay.

**Note:**

Employee Id must be considered as 1001,

Basic salary of the employee must be considered as Rs.15000.00 and Allowances must be considered as Rs.6000.00

Write a Pseudo code and Python program in Eclipse to solve the above real world problem.

Refer below for the formulae to be used.

Monthly Gross Salary = Basic Salary + Allowances Net Salary = Gross Salary – Income Tax

***Assignment 6: Control Structures – Hands - on - Practice***

**Problem Description:** Extend the program written for Assignment 15 to find the income tax to be paid (In Indian Rupees) and the total salary after the income tax deduction as per the details given in below table.

| Gross Salary (In Indian Rupees) | Income Tax percentage |
|---|---|
| Below 5,000 | Nil |
| 5,001 to 10,000 | 10 % |
| 10,001 to 20,000 | 20% |
| More than 20,000 | 30% |

Display the employee id, basic salary, allowances, gross pay, income tax and net pay.

**Note:**

Employee Id must be considered as 1001,

Basic salary of the employee must be considered as Rs.15000.00 and Allowances must be considered as Rs.6000.00

Write a Pseudo code and Python program in Eclipse to solve the above real world problem.

***Assignment 7: Iteration Control Structures - Guided Activity***

**Problem Description:**

Dry run the below code snippets and predict the output.

**Code – 1:**

```
Counter = 1
While counter <= 3:
        print (counter) counter += 1
print ("End of Program")
```

**Code-2:**

```
print ("To find the sum of first 10 integers :")
result = 0
for value in range (1,11):
        result = result + value
print("Sum:", result);
```

**Code-3:**

```
number = 1
result = 0
while number < 5:
        result = result + number
        number = number + 1
print(result)
```

**Code-4:**

```
result = 0
for index in range(40, 10, -2):
        if(index % 5 == 0):
                result = result + index
                print(result)
```

**Code-5:**

```
amount = 100.0
interest = 0.0
months = 1
while months < 6:
        interest = amount * 0.2
        amount = amount + interest
        months += 1
print(amount)
```

***Assignment 8: break statement - Demo***

**Problem Description:**

Dry run the below code snippet and predict the output.

**Code:**

```
count = 0
result = 0
for count in range (1, 10):
        result = result + count
        if result > 6:
                break
        break  print("Result = “, result);
```

***Assignment 9: continue statement - Demo***

**Problem Description:**

Dry run the below code snippet and predict the output.

**Code:**

```
count = 0
for count in range(0,10)
        if 4 == count:
                continue
        print(count)
```

***Assignment 10: Iteration Control Structure – Debugging - Guided Activity***

**Problem Description:** The code given below is written to display all the even numbers between 50 and 80 (both inclusive). Debug the program to get the correct output.

**Step 1:** Type the below program in Eclipse, save the file as for_loop.py, compile and execute.

```
for i in range (50, 80):
        if i % 2 == 0:
                print(i)
        else:
                break
```

**Step 2:** Correct the logical error in the code, save, compile and execute the code

**Step 3:** Implement the same logic using while loop