**Assignment- OOP**

1. Write a Python program to create a class representing a stack data structure. Include methods for pushing and popping elements.
2. Write a Python program to create a class representing a linked list data structure. Include methods for displaying linked list data, inserting and deleting nodes.
3. Write a Python program to create a class representing a shopping cart. Include methods for adding and removing items, and calculating the total price.
4. Write a Python program to create a class representing a stack data structure. Include methods for pushing, popping and displaying elements.

**Assignment**

**1.** Write a Python program to create a lambda function that adds 15 to a given number passed in as an argument, also create a lambda function that multiplies argument x with argument y and prints the result.  
Sample Output:  
25  
48

**2.** Write a Python program to create a function that takes one argument, and that argument will be multiplied with an unknown given number.  
Sample Output:  
Double the number of 15 = 30  
Triple the number of 15 = 45  
Quadruple the number of 15 = 60  
Quintuple the number 15 = 75

**3.** Write a Python program to sort a list of tuples using Lambda.  
Original list of tuples:  
[('English', 88), ('Science', 90), ('Maths', 97), ('Social sciences', 82)]  
Sorting the List of Tuples:  
[('Social sciences', 82), ('English', 88), ('Science', 90), ('Maths', 97)]

**4.** Write a Python program to sort a list of dictionaries using Lambda.  
Original list of dictionaries :  
[{'make': 'Nokia', 'model': 216, 'color': 'Black'}, {'make': 'Mi Max', 'model': '2', 'color': 'Gold'}, {'make': 'Samsung', 'model': 7, 'color': 'Blue'}]  
Sorting the List of dictionaries :  
[{'make': 'Nokia', 'model': 216, 'color': 'Black'}, {'make': 'Samsung', 'model': 7, 'color': 'Blue'}, {'make': 'Mi Max', 'model': '2', 'color': 'Gold'}]

**5.** Write a Python program to filter a list of integers using Lambda.  
Original list of integers:  
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]  
Even numbers from the said list:  
[2, 4, 6, 8, 10]  
Odd numbers from the said list:  
[1, 3, 5, 7, 9]

**6.** Write a Python program to square and cube every number in a given list of integers using Lambda.  
Original list of integers:  
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]  
Square every number of the said list:  
[1, 4, 9, 16, 25, 36, 49, 64, 81, 100]  
Cube every number of the said list:  
[1, 8, 27, 64, 125, 216, 343, 512, 729, 1000]

**7.** Write a Python program to find if a given string starts with a given character using Lambda.  
Sample Output:  
True  
False

**8.** Write a Python program to extract year, month, date and time using Lambda.  
Sample Output:  
2020-01-15 09:03:32.744178  
2020  
1  
15  
09:03:32.744178

**9.** Write a Python program to check whether a given string is a number or not using Lambda.  
Sample Output:  
True  
True  
False  
True  
False  
True  
Print checking numbers:  
True  
True

**10.** Write a Python program to create Fibonacci series up to n using Lambda.  
Fibonacci series upto 2:  
[0, 1]  
Fibonacci series upto 5:  
[0, 1, 1, 2, 3]  
Fibonacci series upto 6:  
[0, 1, 1, 2, 3, 5]  
Fibonacci series upto 9:  
[0, 1, 1, 2, 3, 5, 8, 13, 21]

**11.** Write a Python program to find the intersection of two given arrays using Lambda.  
Original arrays:  
[1, 2, 3, 5, 7, 8, 9, 10]  
[1, 2, 4, 8, 9]  
Intersection of the said arrays: [1, 2, 8, 9]