Lab-6 (Concept of polymorphism and Generics)

1. Write a C# program to implement the concept of method overloading.

```
C:\Windows\system32\cmd.exe
Sum of 5 and 10: 15
Sum of 10, 15 and 20: 45
Sum of 3.5 and 2.5: 6
Concatenated string: sandesh, ghimire
Press any key to continue . . .
```

2. Write a C# program to implement the concept of method overriding using virtual method

```
C:\Windows\system32\cmd.exe
Area of Rectangle: 20
Area of Circle: 78.5398163397448
Press any key to continue . . .
```

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3. Write a C# program to implement concept of following operator overloading

a. Unary mimus(-)

```
C:\Windows\system32\cmd.exe
Enter a number: 20
Unary minus (-) operator: -20
Press any key to continue . . .
```

b. Binary operator (* and /)

```
C:\Windows\system32\cmd.exe
Binary operator (*) overloading: 60
Binary operator (/) overloading: 15
Press any key to continue . . .
```

c. Relational operator (== and !=)

```
C:\Windows\system32\cmd.exe
Enter the first number: 5
Enter the second number: 10
Relational operator (==) overloading: False
Relational operator (!=) overloading: True
Press any key to continue . . .
```

4. Write a C program to demonstrate following type of generic class

a. List<T>

```
C:\Windows\system32\cmd.exe
List<T>:
Enter integers (Type 0 to stop):
5
10
15
20
25
0
Enter values in the list:
5
10
15
20
25
Press any key to continue . . .
```

b. Stack<T>

```
C:\Windows\system32\cmd.exe
Stack<T>:
Enter elements to push onto the stack (type 'done' to finish):
1
2
3
4
5
done
Popping elements from the stack:
5
4
3
2
1
Press any key to continue . . .
```

c. Queue<T>

```
C:\Windows\system32\cmd.exe
Queue<T>:
Enter the number of elements in the queue: 5
Enter element 1: 1.1
Enter element 2: 2.2
Enter element 3: 3.3
Enter element 4: 4.4
Enter element 5: 5.5
Dequeuing elements from the queue:
1.1
2.2
3.3
4.4
5.5
```

d. LinkedList<T>

```
C:\Windows\system32\cmd.exe
LinkedList<T> Example:
Enter elements for the linked list (type 'exit' to finish):
Enter an element: 1
Enter an element: 2
Enter an element: 3
Enter an element: 4
Enter an element: 5
Enter an element: exit
Elements in the linked list:
1
2
3
4
5
Press any key to continue . . .
```

e. Dictionary <Tkey, TValue>

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