Superior University, Lahore
Gold Campus
Faculty of CS & IT

Assignment No. 04 [Operator Overloading]

Object Oriented Programming

Instructor	Imran Ashraf	**Department**	CS
Semester	Spring, 2022	**Marks**	15

Purpose of the Assignment:

The main intent of the assignment is to make students practice operator overloading. Performing dynamic memory allocations.

Important Instructions for Assignment

1. It is group assignment and students shall work in a group of two. Only one member shall submit the assignment.
2. Students shall submit two files. One .cpp file that will contain code of your program. The other file will be of word file. Word file shall contain group member names and roll numbers along with Assignment number and title.
3. Selection of Classes and Class Members must be done carefully.
4. Proper coding conventions must be taken care of.
5. Copying from any source shall result in zero marks.
6. Students shall submit soft copy of the program on the LMS.
7. No submission after deadline will be accepted
8. Assignment shall be evaluated through viva and examination of the code.
9. Following checklist shall be used by the instructor to evaluate your assignment.

Evaluation Checklist

Operator Overloading	Selection of Class Members	Coding Conventions followed?	Error Checking	Quality of Algorithms Used	Copied?	Completeness
Good: **Avg:** **Poor:**	**Good:** **Avg:** **Poor:**	**YES / NO**	**YES / NO**	**Good:** **Avg:** **Poor:**	**YES / NO**	**YES / NO**

In this assignment students shall create a "Set" data type and students shall have to perform operator overloading for "Set" class.

Requirements:

Sr	Feature
1	Two sets shall be created in the program. User shall decide the size of the each Set. Only Dynamic arrays shall be created.
2	Once the sets are created then program shall show the following menu A. Press "A" to Find Union B. Press "B" to Find Intersection C. Press "C" to Check Equality of Sets D. Press "D" to Perform Membership Test E. Press "E" to Exit
Set Class Member Functions	
1	**Input** the integer numbers into sets **NOTE:** Students have to overload "stream extraction operator" for inputting into the set.
2	**Find union** of two sets and display the result on the screen. Student have to overload "+" operator to perform this operation.
3	**Find intersection** of two sets and display the result on the screen.
4	**Check Equality** of two sets. Students shall overload "==" operator for this operation.
5	Perform **Membership test** on both sets.
6	**Show Function**. Show Set Members on the screen. Students shall overload "stream insertion operator" to show a set on the screen.
7	**Intersection Operation:** Students shall overload " **-** " subtraction operator to perform this operation.

8	**Constructor**. It shall set the size of the array and as well it will create the underlying dynamic array.
9	**Destructor**. It shall delete the dynamic array.
Class Data Members	
1	**Size.** Type Integer
2	**Pointer.** Type Integer