

Assignment 01 (Due Date 30th September, 2020 11:59 PM)

Create following structures with required variables and functions. Write main function to test your structure?

1. Create structure Set (as discussed in class). Following functions are required: ▪

```
void init (const int SIZE)
▪ bool add (const int ELEMENT)
▪ bool isExist (const int ELEMENT)
▪ void print( )
▪ Set union (const Set &set)
▪ Set intersection (const Set &set)
▪ Set difference (const Set &set) Google for definition of difference of two sets ▪
void resize (const int newSize)
```

2. [BONUS] Extend structure Set, include Universal set integer array as member variable and add following functions:

```
▪ Set complement ( )
▪ bool isSubset (const Set &set)
▪ bool isProperSubset (const Set &set)
```

3. Create structure Bag similar to set except that Bag may have duplicate entries. Write following functions:

```
▪ void init (const int SIZE)
▪ void add (const int ELEMENT)
▪ bool isExist (const int ELEMENT) Just to check existence
▪ void print( )
▪ Bag merge (const Bag &bag) Add all elements of two bags in new bag ▪ int
indexOf (const int ELEMENT) Return index of element, otherwise -1 ▪ void
resize (const int newSize)
▪ bool has(const Bag &bag) Check if current bag has all elements of other bag
```