**National University of Computer and Emerging Sciences**



**Lab Manual # 8**

**Object Oriented Programming**

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| Section | F |
| Semester | Spring 2020 |

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**Instructions:**

This is an individual Lab. You are NOT allowed to work/submit in form of group. Absolutely NO collaboration is allowed. Any traces of cheating would result in an “F” grade in this Lab.’

Keep the following good programming practices in mind when writing your code:

* **Indent your code properly.**
* **Use meaningful variable names.**
* **Use meaningful prompt lines/labels for input/output.**

**Objectives:**

* Binary operators using non-member functions, concept of friendship, unary operators subscript operator

**Question-1:**

Complete the definition of the class given below such that the main program runs successfully. Make sure that your program doesn’t consume extra memory space and it should not leak any memory.

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| **class BinaryNum**  **{**  private:        int\* binNum;    //integer array to save binary number      int noOfBits;    //total no. of bits  public:      void Print()      {          if(binNum != 0){              for(int i = 0 ; i< noOfBits ; i++)                  cout<<binNum[i];          }          cout<<endl;      }  **};**  **void main()**  **{**      BinaryNum b1;            //noOfBits = 0, binNum is NULL      BinaryNum b2("101");    //noOfBits = 3, binNum is {1,0,1}      BinaryNum b3("1001");    //noOfBits = 4, binNum is {1,0,0,1}      cout<<"b1 = ";cout<<b1;    //Prints Nothing      cout<<"b2 = ";cout<<b2;    //Prints 101      cout<<"b3 = ";cout<<b3;    //Prints 1001      b1 = b2+b3;      cout<<"b1 = "<<b1;    //Prints 1110      cout<<"b1[0] = "<<b1[0]<<endl;    //Prints 1 (0th bit in b1)      cout<<"b1[3] = "<<b1[3]<<endl;    //Prints 0 (3rd bit in b1)      cout<<b3++;  bool check = (b3==b2);  cout<<"is equal= "<<check;            //Prints 0  cout<<++b3;  cin>>b2;  cout<<b1-b2;  **}** |