A. Complexity of Methods

```
public void displayAll(Student studentArray[]) {
         for (int i = 0; i < studentArray.length; i++) {                          2n+2
                  if (studentArray[i] != null) {                                  1
                           studentArray[i].printInfo();                           1
                  }
         }                                                                        Total Cost: 2n+4
}                                                                                          = O(n)



public void searchStudent(String id, Student studentArray[]) {
         boolean List = false;                                                    1
         for(int i = 0 ; i < studentArray.length ; i++){                          2n+2
           if(studentArray[i] != null) {                                          1
               if (studentArray[i].getID() == Integer.parseInt(id)) {             1
                    studentArray[i].printInfo();                                  1
                    List = true;                                                  1
               }
           }                                                                              }

         if (!List) {
                           System.out.print("\nStudent not found");               1
                  }
    }                                                                             Total Cost: 2n + 8
                                                                                           = O(n)
```

B. Classes

1. Person - It gets the inputs of “Name” and “Age” from the MainClass
   - It then inherited by the Student Class
2. Student - It gets the input “ID number” from the main class and prints ID#, Name, and Age
   - The class extends Person
3. MainClass – it runs the main function of the program
   - It will prompt the user to select an input in the User Menu
   - Numbers from 1 to 5 has their specific functions
     - 1 – adds students to the list
     - 2 – removes the student from the list
     - 3 – search if a specific student is on the list
     - 4 – prints the whole list
     - 5 – exit the program
4. StudentMethods – interface implemented by the MainClass
   - Methods are:
     - displayAll(); - It reiterates the arrayList and prints all existing student in the list
     - searchStudent(); - It searches the array to find a specific ID and pints the student info