



Daffodil International University
Department of Software Engineering
Faculty of Science & Information Technology
Lab Assessment, Summer 2026

Course Code: SE215; Course Title: Algorithm Design & Analysis Lab
Sections & Teachers: 44I2 (AF)

Marks: 25

Time: 35 Minutes

Question 1: Student Record Search System

A university maintains the student IDs of a laboratory section in random order. Since Binary Search only works on sorted data, you must first sort the IDs and then search for a specific student.

Input

- An integer N representing the number of student IDs.
- N integer student IDs.
- A student ID to search.

Tasks

1. Sort the student IDs in **ascending order using Quick Sort**.
2. Display the sorted array.
3. Search the given student ID using **Binary Search**.
4. Display the index (0-based) if found; otherwise print "**Student ID Not Found**".

Sample Input

8

3021 1056 4123 2089 3001 1125 4090 2005

3001

Sample Output

Sorted IDs:

1056 1125 2005 2089 3001 3021 4090 4123

Student ID found at index 4.

Question 2: Employee Salary Management

A company stores employee salaries in an array. The HR department wants to arrange the salaries and check whether a particular salary exists.

Input

- Number of employees **N**
- **N** salaries
- User choice
 - **1** → **Ascending**
 - **2** → **Descending**
- Salary to search

Tasks

1. If the user chooses
 - **1**, sort the salaries in ascending order using **Insertion Sort**.
 - **2**, sort the salaries in descending order using **Insertion Sort**.
2. Display the sorted salaries.
3. Search the target salary using **Linear Search**.
4. Print its position (1-based) if found; otherwise print "**Salary Not Found**".

Sample Input

```
7
42000 38000 50000 47000 35000 52000 40000
2
47000
```

Sample Output

```
Sorted Salaries:
52000 50000 47000 42000 40000 38000 35000
```

Salary found at position 3.