

# JAWAHARLAL NEHRU UNIVERSITY

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SCHOOL OF COMPUTER & SYSTEM SCIENCES

PROJECT

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ENROLMENT NO.: 21/10/JC/012

SUBJECT: PROGRAMMING IN C (CS-401)

# SEARCHING & SORTING OF A LIST OF STRINGS

PRESENTED BY TRISHITA NANDY





# WHAT IS SEARCHING ?

Searching is an operation or a technique that helps find the place of a given element or value in the list. Any search is said to be successful if the element that is being searched is found and if the element is not found then the search is unsuccessful. Two standard searching techniques are:

- **LINEAR SEARCH**
- **BINARY SEARCH**



# WHAT IS SORTING ?

Sorting is the process of placing elements from a collection in some kind of order. For example, a list of numbers can be sorted in ascending or descending order. Some standard sorting techniques are:

- **BUBBLE SORT**
- **SELECTION SORT**
- **INSERTION SORT**
- **QUICK SORT**
- **MERGE SORT**
- **HEAP SORT**



# FEATURES OF THE PROJECT

In this program user can input any number of strings (names) according to user's choice and the program gives the user various options of searching and sorting like:

- **Search**
- **Sort by Alphabetical order**
- **Sort by Reverse Alphabetical order**
- **Sort by Increasing number of characters**
- **Sort by Decreasing number of characters**

How many names you want to enter? 5

Enter strings:

Trishita Nandy

Anushka Roy

Rohan Mukherjee

Ishita Banerjee

Bidisha Roy

```
* * * * *
* PRESS 1: Search
* PRESS 2: Sort by Alphabetical order
* PRESS 3: Sort by Reverse Alphabetical order
* PRESS 4: Sort by increasing number of characters
* PRESS 5: Sort by decreasing number of characters
* PRESS 6: Exit
* * * * *
```

Enter your choice: 1

Enter any word to search: Jee

'Jee' found in the line 3 in the name: Rohan Mukherjee

'Jee' found in the line 4 in the name: Ishita Banerjee



# CONCEPTS USED IN THE PROJECT

This program is created using C programming language. Some basic concepts of C programming language is used in the program.

- **2 - Dimensional array**
- **Conditional statements (if-else)**
- **Loops (for, while)**
- **Switch case**
- **String functions (strcmp( ), strcpy( ), strlen( ) )**
- **User defined functions**

# FUNCTIONS USED IN THE PROJECT

## **search()**

```
search(char str[25][25], int n);
```

## **alphabetical\_sort()**

```
alphabetical_sort(char str1[25][25],char temp1[25],int n1);
```

## **alphabetical\_sort\_reverse()**

```
alphabetical_sort_reverse(char str1[25][25],char temp1[25],int n1);
```

## **sort\_by\_number\_of\_characters()**

```
sort_by_number_of_characters(char str1[25][25],char temp1[25],int n1);
```

## **sort\_by\_number\_of\_characters\_reverse()**

```
sort_by_number_of_characters_reverse(char str1[25][25],char temp1[25],int n1);
```



# OUTPUT- SORT IN ALPHABETICAL ORDER

```
How many names you want to enter? 5

Enter strings:
Trishita Nandy
Anushka Roy
Rohan Mukherjee
Ishani Banerjee
Bidisha Roy

* * * * *
* PRESS 1: Search *
* PRESS 2: Sort by Alphabetical order *
* PRESS 3: Sort by Reverse Alphabetical order *
* PRESS 4: Sort by increasing number of characters *
* PRESS 5: Sort by decreasing number of characters *
* PRESS 6: Exit *
* * * * *

Enter your choice: 2

Sort by Alphabatical order->
Anushka Roy
Bidisha Roy
Ishani Banerjee
Rohan Mukherjee
Trishita Nandy
```

# OUTPUT- SORT IN REVERSE ALPHABETICAL ORDER

```
How many names you want to enter?  5

Enter strings:
Trishita Nandy
Anushka Roy
Rohan Mukherjee
Ishani Banerjee
Bidisha Roy

* * * * *
* PRESS 1: Search                                     *
* PRESS 2: Sort by Alphabetical order                 *
* PRESS 3: Sort by Reverse Alphabetical order         *
* PRESS 4: Sort by increasing number of characters    *
* PRESS 5: Sort by decreasing number of characters    *
* PRESS 6: Exit                                       *
* * * * *

Enter your choice:  3

Sort by Reverse Alphabetical order->
Trishita Nandy
Rohan Mukherjee
Ishani Banerjee
Bidisha Roy
Anushka Roy
```

# OUTPUT- SORT BY INCREASING NO. OF CHARACTERS

```
How many names you want to enter? 5

Enter strings:
Trishita Nandy
Anushka Roy
Rohan Mukherjee
Ishani Banerjee
Bidisha Roy

* * * * *
* PRESS 1: Search *
* PRESS 2: Sort by Alphabetical order *
* PRESS 3: Sort by Reverse Alphabetical order *
* PRESS 4: Sort by increasing number of characters *
* PRESS 5: Sort by decreasing number of characters *
* PRESS 6: Exit *
* * * * *

Enter your choice: 4

Sort by increasing number of characters is->
Anushka Roy
Bidisha Roy
Trishita Nandy
Ishani Banerjee
Rohan Mukherjee
```

# OUTPUT- SORT BY DECREASING NO. OF CHARACTERS

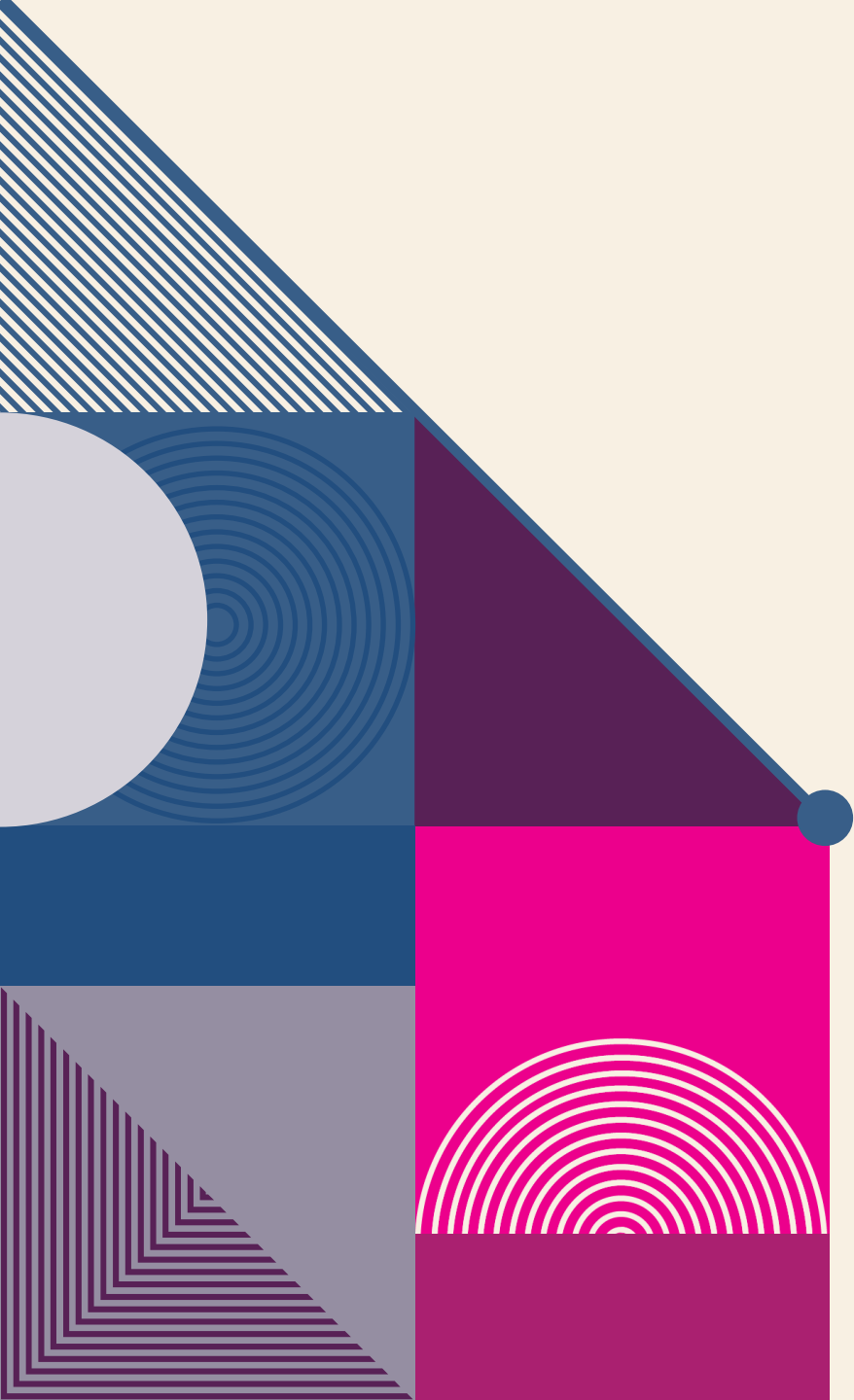
```
How many names you want to enter? 5

Enter strings:
Trishita Nandy
Anushka Roy
Rohan Mukherjee
Ishani Banerjee
Bidisha Roy

* * * * *
* PRESS 1: Search *
* PRESS 2: Sort by Alphabetical order *
* PRESS 3: Sort by Reverse Alphabetical order *
* PRESS 4: Sort by increasing number of characters *
* PRESS 5: Sort by decreasing number of characters *
* PRESS 6: Exit *
* * * * *

Enter your choice: 5

Sort by decreasing number of characters is->
Rohan Mukherjee
Ishani Banerjee
Trishita Nandy
Anushka Roy
Bidisha Roy
```



**THANK YOU**