RAJSHAHI UNIVERSITY OF ENGINEERING & TECHNOLOGY

Department of Computer Science & Engineering

LAB REPORT

Topic: Shell Script (Array)

Course No: CSE 3202

Course Name: Sessional Based on Operating Systems

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Contents

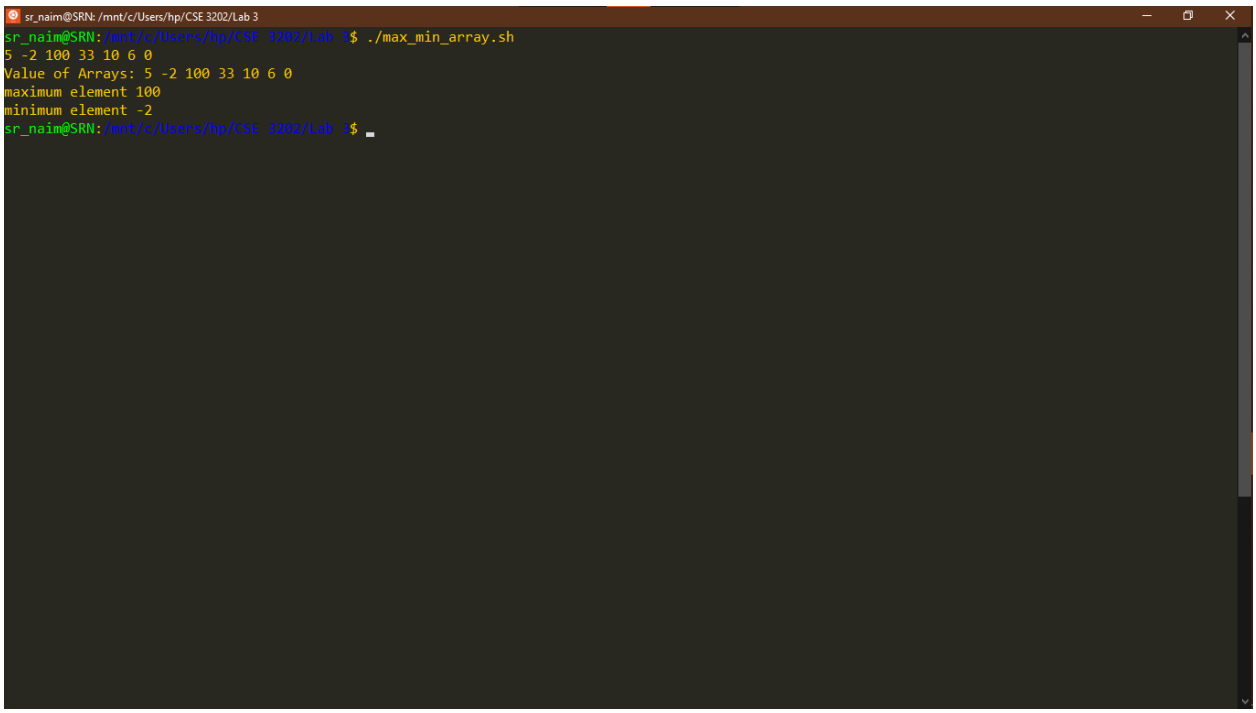
Program No. 1

Program Topic: Find the maximum and minimum number of an array.

CODE

```
#! /bin/bash

read -a arr
echo Value of Arrays: ${arr[@]}

max=${arr[0]}
min=${arr[0]}

for i in ${arr[@]}
do
        if (( $i >= $max ))
        then
                max=$i
        fi

        if (( $i <= $min ))
        then
                min=$i
        fi
done

echo maximum element $max
echo minimum element $min
```

OUTPUT



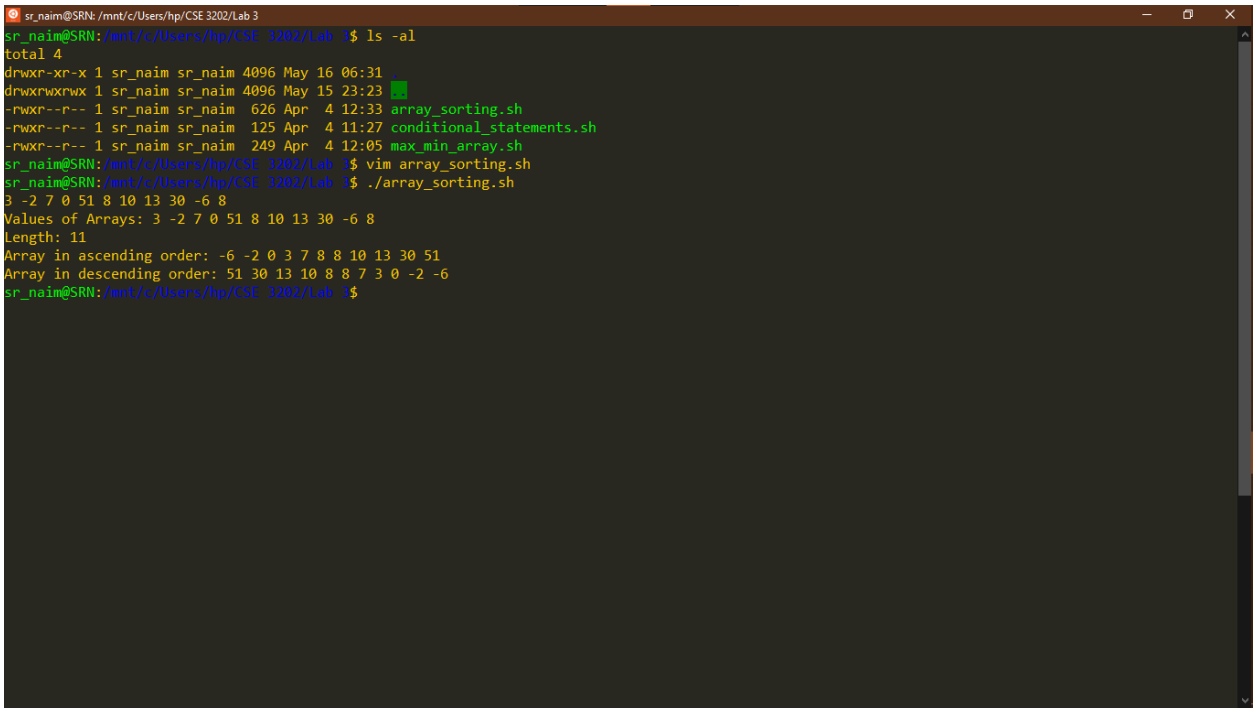
Program No. 2

Program Topic: Sort the elements of an array in ascending and descending order.

CODE

```
#! /bin/bash

read -a arr
echo Values of Arrays: ${arr[@]}

len=${#arr[@]}
echo Length: $len

# bubble sort
temp=0
# Ascending
for ((i=0;i<$((len-1));i++))
do
        for ((j=0;j<$((len-i-1));j++))
        do
                if (( ${arr[j]} > ${arr[$((j+1))]} ))
                then
                        temp=${arr[j]}
                        arr[$j]=${arr[$((j+1))]}
                        arr[$((j+1))]=$temp
                fi
        done
done

echo Array in ascending order: ${arr[@]}

# Descending
for ((i=0;i<$((len-1));i++))
do
        for ((j=0;j<$((len-i-1));j++))
        do
                if (( ${arr[j]} < ${arr[$((j+1))]} ))
                then
                        temp=${arr[j]}
                        arr[$j]=${arr[$((j+1))]}
                        arr[$((j+1))]=$temp
                fi
        done
done

echo Array in descending order: ${arr[@]}
```

OUTPUT



Discussion:

- In shell scripting, when we access the value of a variable, we use the '$' sign. Otherwise, we do not need to use the dollar sign. For example, while assigning a value to a variable we do not use the dollar sign for the variable we are going to assign on.
- To print all the elements of array an '*' sign can also be used other than '@' sign. We can print all the elements in this way too E.g. '${arr[@]:0}'.
- Only the array name without any index specified denotes the first element E.g. '${arr}'.
- While using conditional statements or array indexes, we have to be precautious about first brackets and extra spaces. Both could cause an error in the code.