# 4B OS LAB-02 ASSIGNMENT

Muhammad Danish
cs182019

**Question1**:

**CODE**:

question1.sh

```
#! /bin/bash

arr=(10 9 8 7 6 5 4 3 2 1)
echo "Array Elements : ${arr[@]}"

#bubble sort algorithm
for ((i=0 ; i<10 ;i++))
do
        for((j=0 ; j<10-i-1; j++))
        do
        if [ ${arr[j]} -gt ${arr[$((j+1))]} ]
                then
                temp=${arr[j]}
                arr[$j]=${arr[$((j+1))]}
                arr[$((j+1))]=$temp
        fi
        done
done

echo "Array Bubble Sorted : ${arr[@]}"

```

**OUTPUT**:

```
danish@Muhammad-Danish:~/Lab 02$ bash question1.sh
Array Elements : 10 9 8 7 6 5 4 3 2 1
Array Bubble Sorted : 1 2 3 4 5 6 7 8 9 10
danish@Muhammad-Danish:~/Lab 02$
```

**Question2**:

**CODE**:

question1.sh | question2.sh | question3.sh

```
#! /bin/bash
num=0
counter=0
read -p 'Please Enter a Number : ' num
# if user has entered value 1 or lesser than that.
if [ $num -le 1 ]
then
        echo "You have entered $num. There is no Prime Number before 2. Please Enter a number equals to or greater than 2."
# if user has entered 2 which is the first prime number.
elif [ $num -eq 2 ]
then
        echo "You have entered $num.It is the first Prime Number. Please enter a number greater than 2."
# if user has entered number greater than 2 it will find the last prime number before the entered number.
else
for (( i=$num-1; i>=1; i-- ))
do
        for (( j=2; j<i; j++ ))
        do
                rem=$(($i%$j))
                if [ $rem -eq 0 ]
                then
                counter=$((counter+1))
                fi
        done
        if [ $counter -eq 0 ]
        then
                echo "$i is the last Prime Number before $num"
                break
        fi
        counter=0
```

```
        fi
        counter=0
done
fi
```

**OUTPUT**:

```
danish@Muhammad-Danish:~/Lab 02$ bash question2.sh
Please Enter a Number : 1
You have entered 1. There is no Prime Number before 2. Please Enter a number equals to or greater than 2.
danish@Muhammad-Danish:~/Lab 02$ bash question2.sh
Please Enter a Number : 2
You have entered 2.It is the first Prime Number. Please enter a number greater than 2.
danish@Muhammad-Danish:~/Lab 02$ bash question2.sh
Please Enter a Number : 50
47 is the last Prime Number before 50
danish@Muhammad-Danish:~/Lab 02$
```

**Question3**:

**CODE**:

question1.sh | question2.sh | question3.sh

```
#! /bin/bash

read -p 'Enter your Password : ' pass

alphaCount=0
lowerCheck=0
upperCheck=0
numCheck=0

# *flag = 0 = false
# *flag = 1 = true

#counting number of characters
alphaCount=${#pass}

#checking lower case alphabets
if [[ "$pass" =~ [a-z] ]]
then
        lowerCheck=$((lowerCount+1))
fi

#checking upper case alphabets
if [[ "$pass" =~ [A-Z] ]]
then
        upperCheck=$((upperCount+1))
fi

#checking numbers
if [[ $pass =~ [0-9] ]]
then
        numCheck=$((numCount+1))
fi

if [ $alphaCount -ge 8 ] && [ $upperCheck -eq 1 ] && [ $lowerCheck -eq 1 ] && [ $numCheck -eq 1 ];
then
        echo "Your password is Strong."

else
        echo "Your password is WEAK."
fi
```

**OUTPUT**:

```
danish@Muhammad-Danish:~/Lab 02$ bash question3.sh
Enter your Password : password
Your password is WEAK.
danish@Muhammad-Danish:~/Lab 02$ bash question3.sh
Enter your Password : passWord
Your password is WEAK.
danish@Muhammad-Danish:~/Lab 02$ bash question3.sh
Enter your Password : passWord1
Your password is Strong.
danish@Muhammad-Danish:~/Lab 02$
```

**Muhammad Danish**
**cs182019**