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Roll – 7

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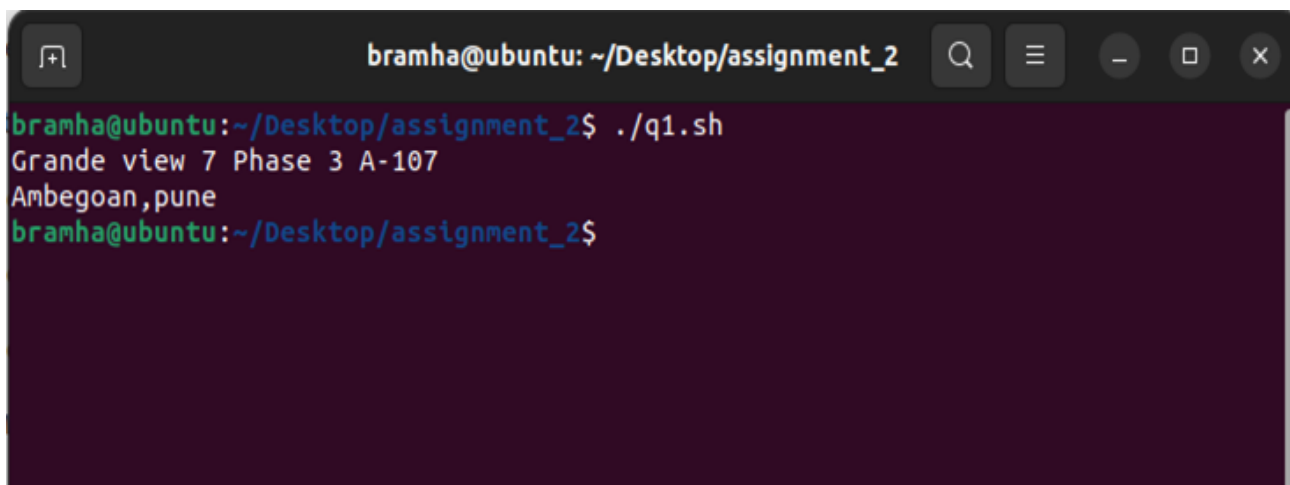
## ASSIGNMENT 2

**1. Write a shell script to display your permanent address.**

```
#!/usr/bin/bash
```

```
echo "Grande view 7 Phase 3 A-107"
```

```
echo "Ambegoan,pune"
```

A terminal window titled 'bramha@ubuntu: ~/Desktop/assignment\_2' with standard window controls. The prompt is 'bramha@ubuntu:~/Desktop/assignment\_2\$'. The user enters './q1.sh'. The script outputs 'Grande view 7 Phase 3 A-107' and 'Ambegoan,pune' on separate lines. The prompt returns to 'bramha@ubuntu:~/Desktop/assignment\_2\$'.

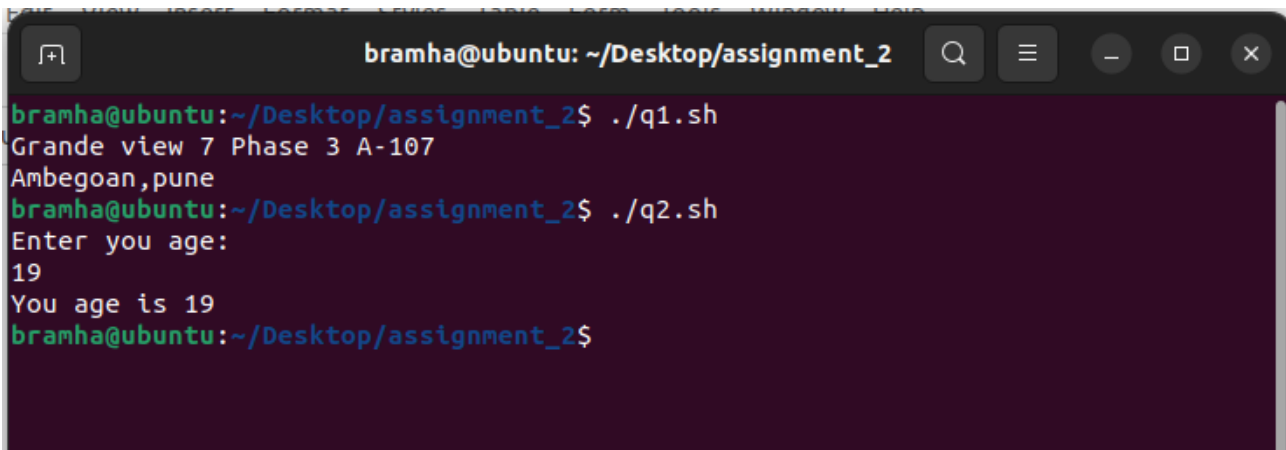
**2. Write a shell script to take input from the user and display it.**

```
#!/usr/bin/bash
```

```
echo "Enter you age:"
```

```
read age
```

```
echo "You age is $age"
```



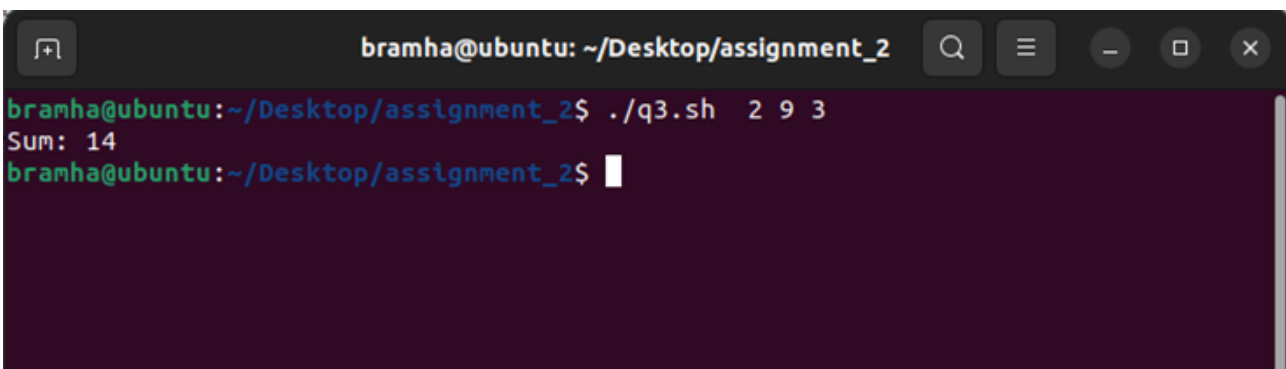
```
bramha@ubuntu: ~/Desktop/assignment_2
bramha@ubuntu:~/Desktop/assignment_2$ ./q1.sh
Grande view 7 Phase 3 A-107
Ambegoan,pune
bramha@ubuntu:~/Desktop/assignment_2$ ./q2.sh
Enter you age:
19
You age is 19
bramha@ubuntu:~/Desktop/assignment_2$
```

**3. Write a shell script to demonstrate use of command line argument.**

```
#!/usr/bin/bash
sum=0

for i in "$@";
do
    sum=$((sum + i))
done

echo "Sum: $sum"
```



```
bramha@ubuntu: ~/Desktop/assignment_2
bramha@ubuntu:~/Desktop/assignment_2$ ./q3.sh 2 9 3
Sum: 14
bramha@ubuntu:~/Desktop/assignment_2$
```

**4. Write a shell script to add two numbers where both the numbers are user inputs.**

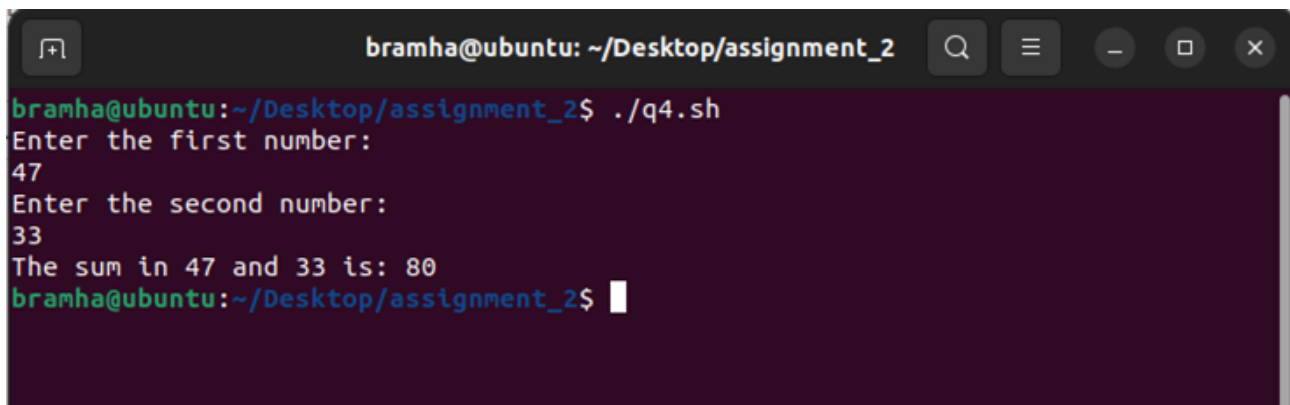
```
#!/usr/bin/bash
```

```
echo "Enter the first number:"  
read num1
```

```
echo "Enter the second number:"  
read num2
```

```
sum=$((num1 + num2))
```

```
echo "The sum in $num1 and $num2 is: $sum"
```

A screenshot of a terminal window with a dark background. The window title is "bramha@ubuntu: ~/Desktop/assignment\_2". The prompt is "bramha@ubuntu:~/Desktop/assignment\_2\$". The user has entered the command "./q4.sh". The script prompts for the first number, and the user enters "47". It then prompts for the second number, and the user enters "33". The script outputs "The sum in 47 and 33 is: 80". The prompt is now "bramha@ubuntu:~/Desktop/assignment\_2\$" with a cursor.

```
bramha@ubuntu:~/Desktop/assignment_2$ ./q4.sh  
Enter the first number:  
47  
Enter the second number:  
33  
The sum in 47 and 33 is: 80  
bramha@ubuntu:~/Desktop/assignment_2$
```

**5. Write a shell script to check whether a number  $n$  is even or odd, where  $n$  is user input.**

```
#!/usr/bin/bash
```

```
echo "Enter a number:"  
read n
```

```
if [  $$(n \% 2)$  -eq 0 ]; then  
    echo "$n is even."  
else  
    echo "$n is odd."  
fi
```

```
bramha@ubuntu: ~/Desktop/assignment_2
bramha@ubuntu:~/Desktop/assignment_2$ ./q5.sh
Enter a number:
55
55 is odd.
bramha@ubuntu:~/Desktop/assignment_2$
```

**6. Write a shell script to input 10 numbers in array and find second largest number in it.**

```
#!/usr/bin/bash
declare -a numbers

echo "Enter 10 numbers:"

for ((i = 0; i < 10; i++)); do
    read -p "Enter number  $$(i + 1)$ : " num
    numbers[$i]=$num
done

sorted_numbers=$(for i in "${numbers[@]"; do echo "$i"; done |
sort -nr))

second_largest=${sorted_numbers[1]}

echo "The second largest number is: $second_largest"
```

```
bramha@ubuntu: ~/Desktop/assignment_2
bramha@ubuntu:~/Desktop/assignment_2$ ./q6.sh
Enter 10 numbers:
Enter number 1: 34
Enter number 2: 22
Enter number 3: 16
Enter number 4: 47
Enter number 5: 35
Enter number 6: 29
Enter number 7: 44
Enter number 8: 49
Enter number 9: 32
Enter number 10: 20
The second largest number is: 47
bramha@ubuntu:~/Desktop/assignment_2$
```

**7. Write a shell script to check whether a number *n* is palindrome or not , where *n* is user input.**

```
#!/usr/bin/bash

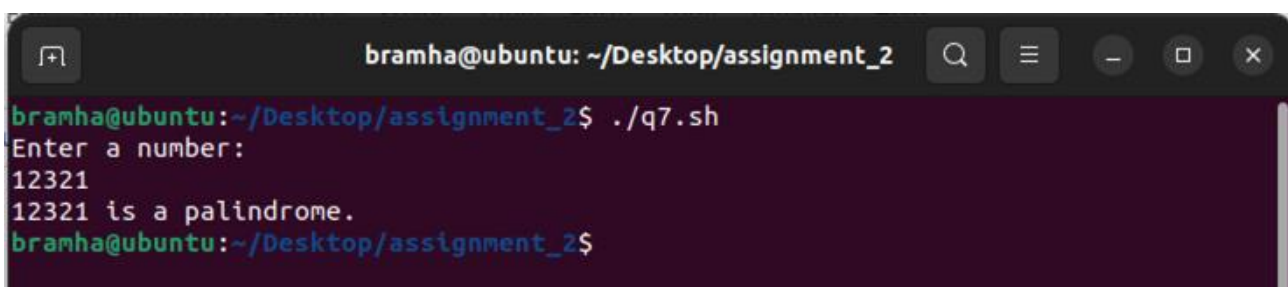
echo "Enter a number:"
read n

o_n=$n

r_n=0

while [ $n -gt 0 ]; do
    rem=$((n % 10))
    r_n=$((r_n * 10 + rem))
    n=$((n / 10))
done

if [ $o_n -eq $r_n ]; then
    echo "$o_n is a palindrome."
else
    echo "$o_n is not a palindrome."
fi
```

A terminal window titled 'bramha@ubuntu: ~/Desktop/assignment\_2' showing the execution of a shell script. The prompt is 'bramha@ubuntu:~/Desktop/assignment\_2\$ ./q7.sh'. The script prompts 'Enter a number:' and the user enters '12321'. The script outputs '12321 is a palindrome.' and returns to the prompt 'bramha@ubuntu:~/Desktop/assignment\_2\$'.

```
bramha@ubuntu: ~/Desktop/assignment_2
bramha@ubuntu:~/Desktop/assignment_2$ ./q7.sh
Enter a number:
12321
12321 is a palindrome.
bramha@ubuntu:~/Desktop/assignment_2$
```

**8. Write a shell script to check grade of a student as follows:**

**Total marks of the student=100**

- If student 's mark  $\geq 90$ , grade is O .
- If student 's mark  $\geq 80$  and marks  $< 90$ , grade is E.
- If student 's mark  $\geq 70$  and marks  $< 80$ , grade is A.
- If student 's mark  $\geq 60$  and marks  $< 70$ , grade is B.
- If student 's mark  $\geq 50$  and marks  $< 60$ , grade is C.

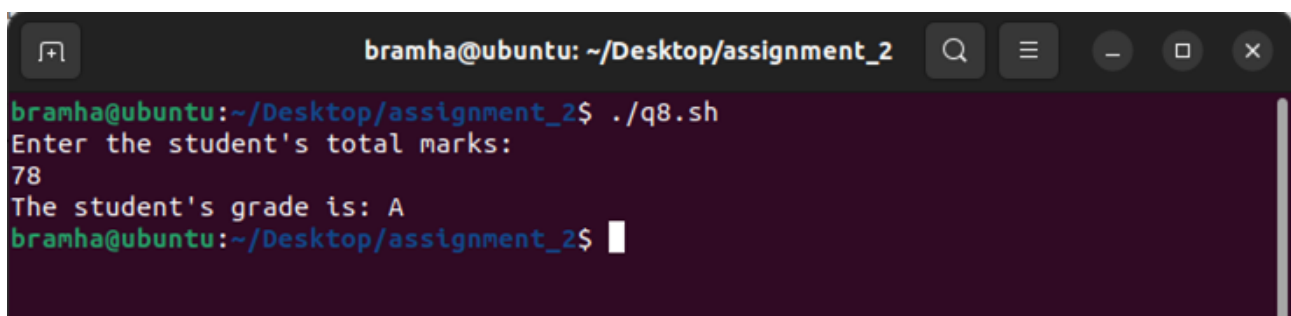
- If student 's mark < 50, grade is F.

```
#!/usr/bin/bash
```

```
echo "Enter the student's total marks:"  
read total_marks
```

```
if [ $total_marks -ge 90 ]; then  
    grade="O"  
elif [ $total_marks -ge 80 ]; then  
    grade="E"  
elif [ $total_marks -ge 70 ]; then  
    grade="A"  
elif [ $total_marks -ge 60 ]; then  
    grade="B"  
elif [ $total_marks -ge 50 ]; then  
    grade="C"  
else  
    grade="F"  
fi
```

```
echo "The student's grade is: $grade"
```

A terminal window titled 'bramha@ubuntu: ~/Desktop/assignment\_2' with standard window controls. The terminal shows the execution of a script './q8.sh'. It prompts for 'Enter the student's total marks:' and receives the input '78'. It then outputs 'The student's grade is: A'. The prompt returns to 'bramha@ubuntu:~/Desktop/assignment\_2\$' with a cursor.

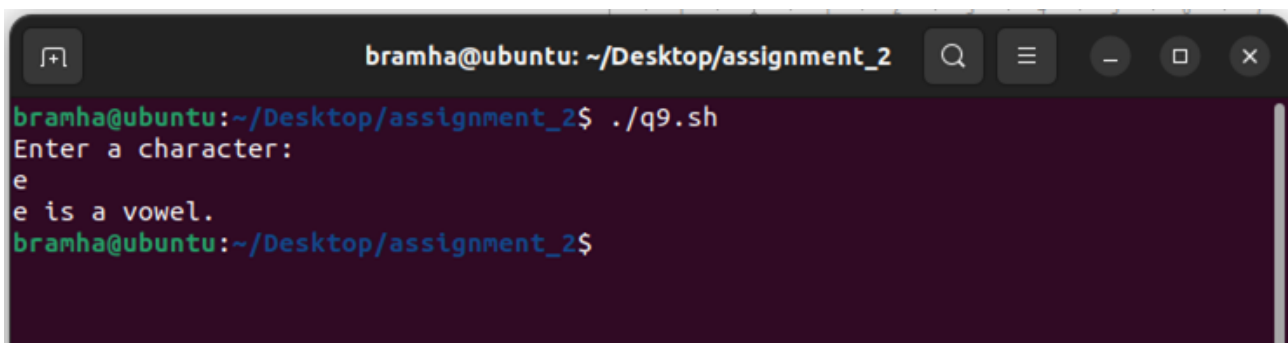
```
bramha@ubuntu: ~/Desktop/assignment_2  
bramha@ubuntu:~/Desktop/assignment_2$ ./q8.sh  
Enter the student's total marks:  
78  
The student's grade is: A  
bramha@ubuntu:~/Desktop/assignment_2$
```

**9. Write a shell script to check if input character is vowel or not using case control statement.**

```
#!/usr/bin/bash

echo "Enter a character:"
read char

case "$char" in
    [AaEeliOoUu])
        echo "$char is a vowel."
        ;;
    *)
        echo "$char is not a vowel."
        ;;
esac
```

A terminal window titled 'bramha@ubuntu: ~/Desktop/assignment\_2' showing the execution of a shell script. The prompt is 'bramha@ubuntu:~/Desktop/assignment\_2\$ ./q9.sh'. The script prompts 'Enter a character:' and the user enters 'e'. The script outputs 'e is a vowel.'. The prompt returns to 'bramha@ubuntu:~/Desktop/assignment\_2\$'.

```
bramha@ubuntu:~/Desktop/assignment_2$ ./q9.sh
Enter a character:
e
e is a vowel.
bramha@ubuntu:~/Desktop/assignment_2$
```

**10. Write a shell script to sort an array of n element using bubble sort, where n is user input.**

```
#!/usr/bin/bash

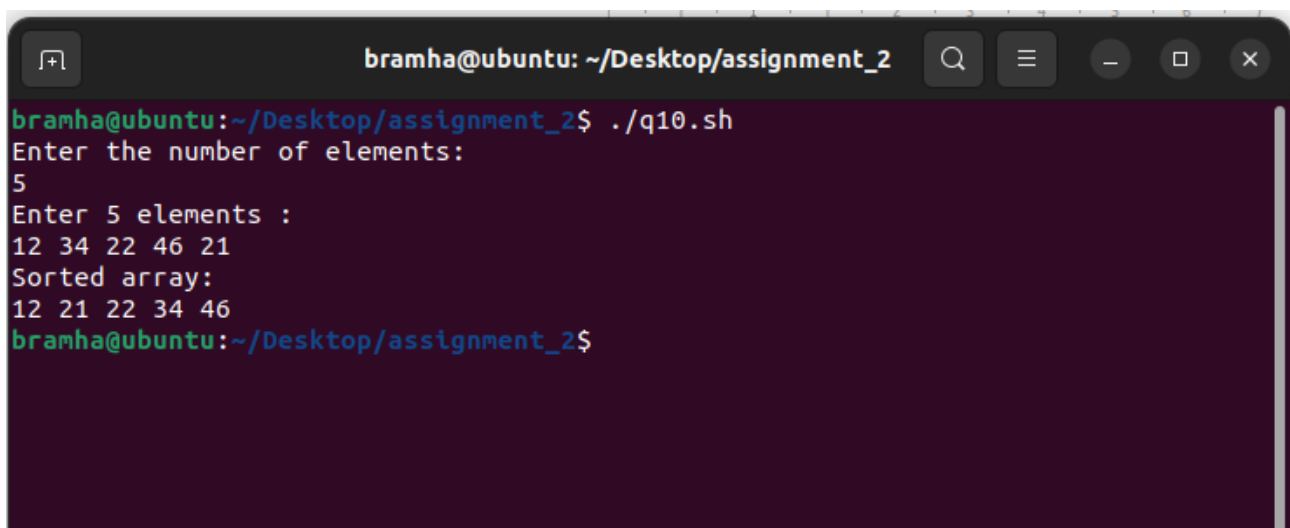
echo "Enter the number of elements:"
read n

declare -a elements
```

```
echo "Enter $n elements :"  
read -a elements
```

```
for ((i = 0; i < n-1; i++)); do  
    for ((j = 0; j < n-i-1; j++)); do  
        if [ "${elements[j]}" -gt "${elements[j+1]}" ]; then  
  
            temp="${elements[j]}"  
            elements[j]="${elements[j+1]}"  
            elements[j+1]="$temp"  
        fi  
    done  
done
```

```
echo "Sorted array:"  
echo "${elements[@]}"
```

A terminal window titled 'bramha@ubuntu: ~/Desktop/assignment\_2' with standard Ubuntu window controls. The terminal shows the execution of a script './q10.sh'. It prompts for the number of elements (5) and then for the elements themselves (12 34 22 46 21). It then displays the sorted array: 12 21 22 34 46.

```
bramha@ubuntu:~/Desktop/assignment_2$ ./q10.sh  
Enter the number of elements:  
5  
Enter 5 elements :  
12 34 22 46 21  
Sorted array:  
12 21 22 34 46  
bramha@ubuntu:~/Desktop/assignment_2$
```



**11. Write a shell script to search an element from an array of n elements where n is user input.**

```
#!/usr/bin/bash
```

```
echo "Enter the number of elements:"  
read n
```

```
declare -a elements
```

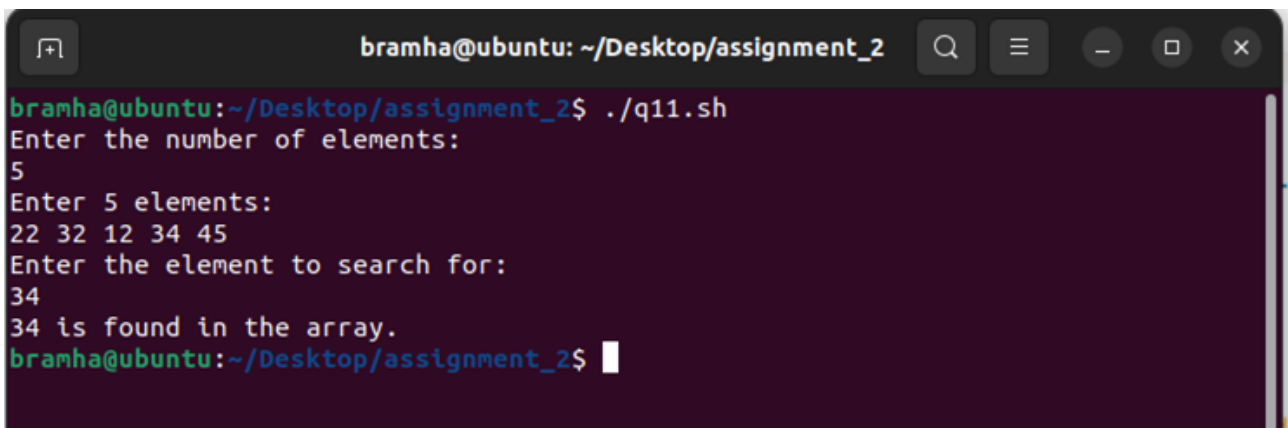
```
echo "Enter $n elements:"  
read -a elements
```

```
echo "Enter the element to search for:"  
read search_element
```

```
found=false
```

```
for ((i = 0; i < n; i++)); do  
    if [ "${elements[i]}" = "$search_element" ]; then  
        found=true  
        break  
    fi  
done
```

```
if [ "$found" = true ]; then  
    echo "$search_element is found in the array."  
else  
    echo "$search_element is not found in the array."  
fi
```



```
bramha@ubuntu: ~/Desktop/assignment_2
bramha@ubuntu:~/Desktop/assignment_2$ ./q11.sh
Enter the number of elements:
5
Enter 5 elements:
22 32 12 34 45
Enter the element to search for:
34
34 is found in the array.
bramha@ubuntu:~/Desktop/assignment_2$
```

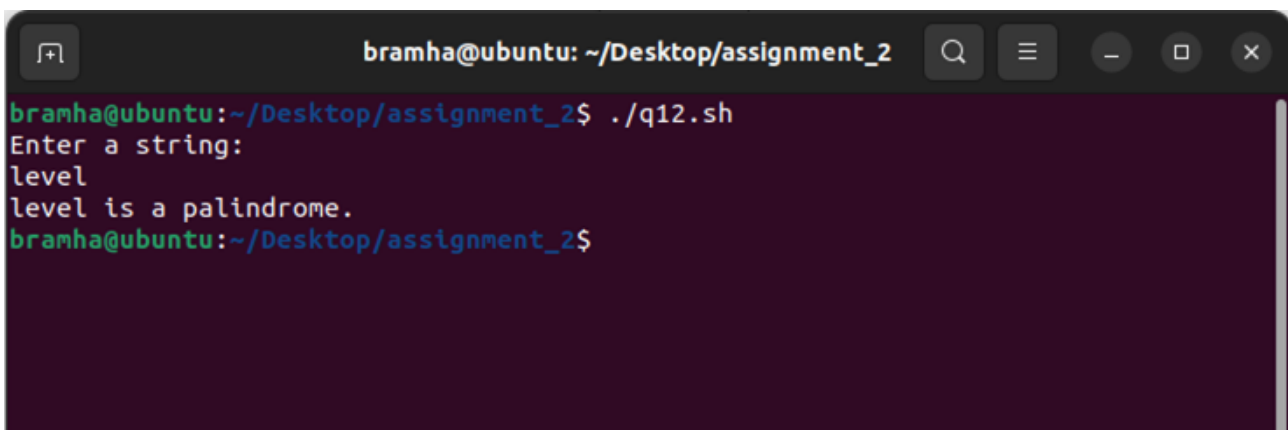
**12. Write a shell script to check whether input string is palindrome or not.**

```
#!/usr/bin/bash
echo "Enter a string:"
read input_string
```

```
reversed_string=$(echo "$input_string" | rev)
```

```
if [ "$input_string" = "$reversed_string" ]; then
    echo "$input_string is a palindrome."
else
    echo "$input_string is not a palindrome."
```

```
Fi
```



```
bramha@ubuntu: ~/Desktop/assignment_2
bramha@ubuntu:~/Desktop/assignment_2$ ./q12.sh
Enter a string:
level
level is a palindrome.
bramha@ubuntu:~/Desktop/assignment_2$
```

**13. Write a shell script to create a file and count number of lines, number of words and number of characters from the file.**

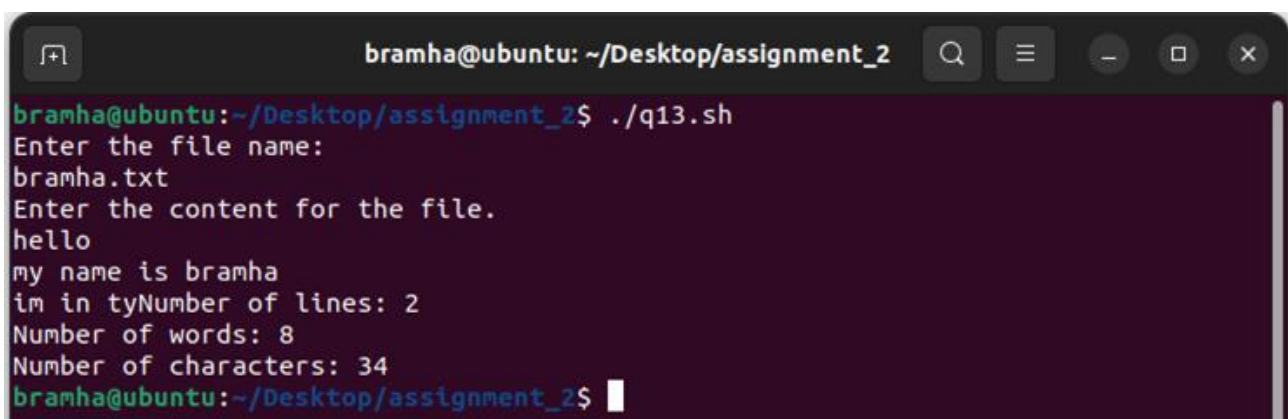
```
#!/usr/bin/bash
echo "Enter the file name:"
read filename

echo "Enter the content for the file."
cat > "$filename"

if [ -f "$filename" ]; then

    num_lines=$(wc -l < "$filename")
    num_words=$(wc -w < "$filename")
    num_chars=$(wc -m < "$filename")

    echo "Number of lines: $num_lines"
    echo "Number of words: $num_words"
    echo "Number of characters: $num_chars"
else
    echo "File not found or created."
fi
```



```
bramha@ubuntu: ~/Desktop/assignment_2
bramha@ubuntu:~/Desktop/assignment_2$ ./q13.sh
Enter the file name:
bramha.txt
Enter the content for the file.
hello
my name is bramha
im in ty
Number of lines: 2
Number of words: 8
Number of characters: 34
bramha@ubuntu:~/Desktop/assignment_2$
```

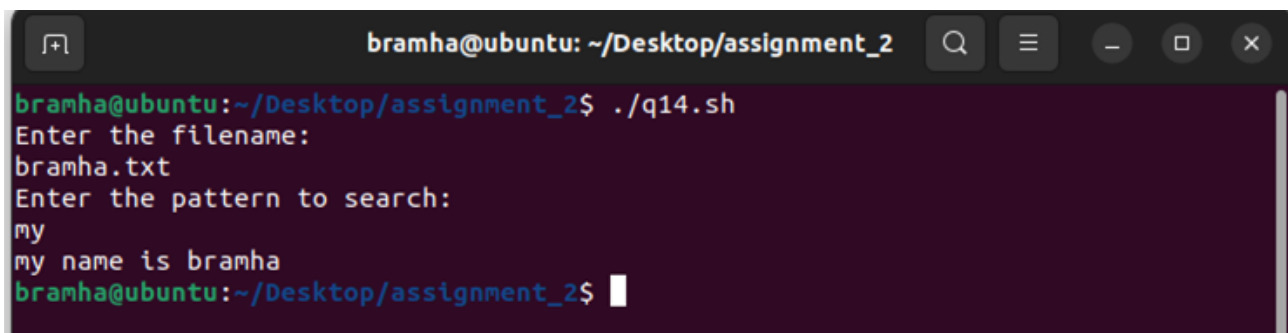
**14. Write a shell script to search a pattern from a file, where filename is user input.**

```
#!/usr/bin/bash
echo "Enter the filename:"
read filename

if [ -f "$filename" ]; then

    echo "Enter the pattern to search:"
    read pattern

    grep "$pattern" "$filename"
else
    echo "File not found."
fi
```

A terminal window titled 'bramha@ubuntu: ~/Desktop/assignment\_2' with standard window controls. The terminal shows the execution of a script named 'q14.sh'. The user is prompted for a filename and enters 'bramha.txt'. Then, they are prompted for a search pattern and enter 'my'. The script successfully finds the pattern in the file, displaying 'my name is bramha'.

```
bramha@ubuntu:~/Desktop/assignment_2$ ./q14.sh
Enter the filename:
bramha.txt
Enter the pattern to search:
my
my name is bramha
bramha@ubuntu:~/Desktop/assignment_2$
```