

FREE AND OPEN SOURCE LAB

Final Exam

Submitted By:

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Roll No: 35

TVE18CS036

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1 Program 1

1.1 Problem Statement

If we list all the natural numbers below 10 that are multiples of 3 or 5, we get 3, 5, 6 and 9. The sum of these multiples is 23. Write a shell script to find the sum of all the multiples of 3 or 5 below an integer n ($10 \leq n \leq 10000$).

1.2 Source Code

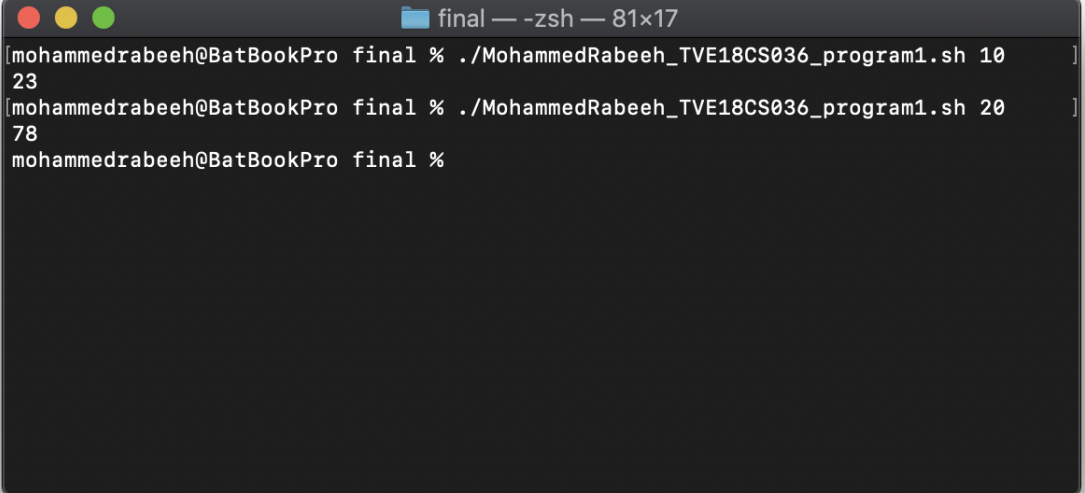
```
#!/bin/bash
# Program Name: MohammedRabeeh_TVE18CS036_1.sh
# Author: Mohammed Rabeeh
# Date: 24th July 2020
# OS: macOS Catalina 10.15.3
# Shell: zsh
# Function: To find the sum of all the multiples of 3 or 5 below an integer n
# ( $10 \leq n \leq 10000$ ).
# Input: ./MohammedRabeeh_TVE18CS036_1.sh n

if [ -z "$1" ]; then
    echo "USAGE: $0 n"
    exit
fi
sum=0
for ((i = 0 ; i < $1 ; i++)); do
    if [ $((i%3)) -eq 0 -o $((i%5)) -eq 0 ]; then
        sum=$((sum + i))
    fi
done
echo $sum
```

1.3 Output (Text)

```
./MohammedRabeeh_TVE18CS036_program1.sh 10  
23  
./MohammedRabeeh_TVE18CS036_program1.sh 20  
78
```

1.4 Output (Image)



```
final — -zsh — 81x17  
[mohammedrabeeh@BatBookPro final % ./MohammedRabeeh_TVE18CS036_program1.sh 10 ]  
23  
[mohammedrabeeh@BatBookPro final % ./MohammedRabeeh_TVE18CS036_program1.sh 20 ]  
78  
mohammedrabeeh@BatBookPro final %
```

2 Program 2

2.1 Problem Statement

Write a script to print name of the file that contains lines longer than n chars.

2.1.1 Source Code

```
#!/bin/bash
# Program Name: MohammedRabeeh_TVE18CS036_program2.sh
# Author: Mohammed Rabeeh
# Date: 24th July 2020
# OS: macOS Catalina 10.15.3
# Shell: zsh
# Function: To print name of the file that contains lines longer than n
# chars.
# Input: ./MohammedRabeeh_TVE18CS036_program2.sh n

if [ -z "$1" ]; then
    echo "USAGE: $0 n"
    exit
fi

for filename in *.txt; do
    [ -e "$filename" ] || continue
    c='grep "\.${(($1 + 1))\}" $filename | wc -l'
    if [ $c -ne 0 ]; then
        echo $filename
    fi
done
```

2.2 Input Files

fruit1.txt

Apples and Oranges
Bananas

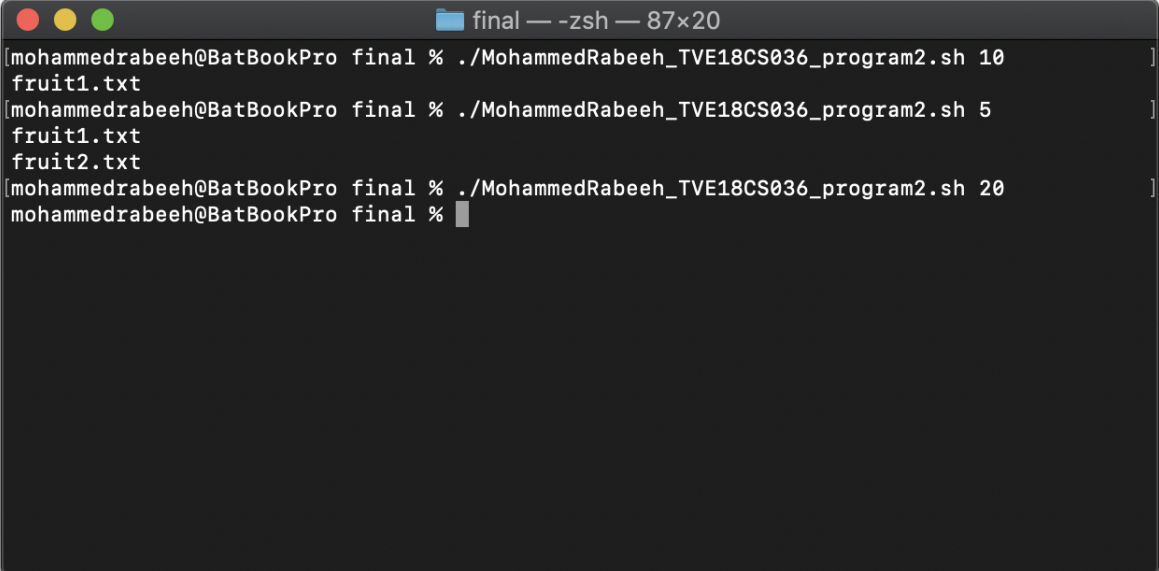
fruit2.txt

Grapes
Kiwi
Tomato

2.3 Output (Text)

```
./MohammedRabeeh_TVE18CS036_program2.sh 10  
fruit1.txt  
./MohammedRabeeh_TVE18CS036_program2.sh 5  
fruit1.txt  
fruit2.txt  
./MohammedRabeeh_TVE18CS036_program2.sh 20
```

2.4 Output (Image)

A terminal window titled 'final — -zsh — 87x20' with standard macOS window controls (red, yellow, green buttons). The terminal shows a user 'mohammedrabeeh' at a host 'BatBookPro' in a directory 'final'. The user runs a script './MohammedRabeeh_TVE18CS036_program2.sh' with three different arguments: 10, 5, and 20. The output for each run is printed on the next line. The first two runs output 'fruit1.txt', and the third run outputs 'fruit2.txt'. The terminal ends with a prompt for a new command.

```
final — -zsh — 87x20
[mohammedrabeeh@BatBookPro final % ./MohammedRabeeh_TVE18CS036_program2.sh 10
fruit1.txt
[mohammedrabeeh@BatBookPro final % ./MohammedRabeeh_TVE18CS036_program2.sh 5
fruit1.txt
fruit2.txt
[mohammedrabeeh@BatBookPro final % ./MohammedRabeeh_TVE18CS036_program2.sh 20
mohammedrabeeh@BatBookPro final %
```