Assignment 1 – Shell Programming

Q1. Redirect both the output and error of a command to a file

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tejas@tejas-VirtualBox:~/practice$ cat sample1.sh

#!/bin/bash

x=10

enter value

y=5

enter value

echo $[x+y]

echo $[x-y]

echo $[x\*y

echo $[x/y]

tejas@tejas-VirtualBox:~/practice$ ./sample1.sh > out.txt 2> err.txt

tejas@tejas-VirtualBox:~/practice$ cat out.txt

15

5

tejas@tejas-VirtualBox:~/practice$ cat err.txt

./sample1.sh: line 3: enter: command not found

./sample1.sh: line 5: enter: command not found

./sample1.sh: line 8: unexpected EOF while looking for matching `]'

./sample1.sh: line 10: syntax error: unexpected end of file

tejas@tejas-VirtualBox:~/practice$

Q2. Include your current directory in the PATH environment variable using export command

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tejas@tejas-VirtualBox:~$ echo $PATH

/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin

tejas@tejas-VirtualBox:~$ export PATH="$HOME/practice:$PATH"

tejas@tejas-VirtualBox:~$ echo $PATH

/home/tejas/practice:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin

tejas@tejas-VirtualBox:~$

Q3. Create 2 files “file1” and “file2”. Create a directory “dir”. Copy the files to the directory and then delete the files. Do so using shell script.

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tejas@tejas-VirtualBox:~/practice$ cat > file1

This is File 1

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tejas@tejas-VirtualBox:~/practice$

tejas@tejas-VirtualBox:~/practice$ cat > file2

This is File 2

^C

tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q3.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q3.sh

Files are copied succesfully

tejas@tejas-VirtualBox:~/practice$

Assignment1\_q3.sh file------🡪

#!/bin/bash

mkdir director

cp file1 dir

cp file2 dir

rm file1

rm file2

echo "Files are copied succesfully"

Q4. Write a script to see current date, time, username and current directory.

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tejas@tejas-VirtualBox:~/practice$ echo $LOGNAME

tejas

tejas@tejas-VirtualBox:~/practice$ echo "Today is:`date`"

Today is:Tuesday 15 March 2022 03:28:00 PM IST

tejas@tejas-VirtualBox:~/practice$ echo pwd

pwd

tejas@tejas-VirtualBox:~/practice$ echo `pwd`

/home/tejas/practice

tejas@tejas-VirtualBox:~/practice$

Q5. Write shell script that will add two numbers, which are supplied as command line argument.

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tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q5.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q5.sh

bash: ./assignment1\_q5.sh: Permission denied

tejas@tejas-VirtualBox:~/practice$ chmod u+x assignment1+q5.sh

chmod: cannot access 'assignment1+q5.sh': No such file or directory

tejas@tejas-VirtualBox:~/practice$ chmod u+x assignment1\_q5.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q5.sh

10

5

15

tejas@tejas-VirtualBox:~/practice$

Q6. Write a script to determine whether given file exists or not, the file name is supplied as command line argument, also check for sufficient number of command line arguments.

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tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q6.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q6.sh

assignment1\_q11.sh

./assignment1\_q6.sh: line 3: ((: -f assignment1\_q11.sh : syntax error: invalid arithmetic operator (error token is ".sh ")

The goven file does not exist

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q6.sh

2.txt

./assignment1\_q6.sh: line 3: ((: -f 2.txt : syntax error in expression (error token is "2.txt ")

The goven file does not exist

tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q6.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q6.sh

2.txt

The goven file does not exist

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q6.sh

assignment1\_q11.sh

The given file exists

tejas@tejas-VirtualBox:~/practice$

assignment1\_q6.sh---------🡪

#!/bin/bash

read x

if [ -f $x ]; then

echo "The given file exists"

else

echo "The goven file does not exist"

fi

Q7. Write a script to print nos. as 5, 4, 3, 2, 1 using while loop.

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tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q7.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q7.sh

5

4

3

2

1

tejas@tejas-VirtualBox:~/practice$

Assignment1\_q7.sh file-------🡪

#!/bin/bash

i=5

while test $i != 0

do

echo "$i"

i=`expr $i - 1`

done

Q8. Take a number as command line and using until loop print value from 1 to till number.

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tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q8.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q8.sh

7

1

2

3

4

5

6

7

Assignment1\_q8.sh file ------🡪

#!/bin/bash

read x

a=1

until [ $a -gt $x ]

do

echo $a

a=`expr $a + 1`

done

Q9. Write a script, using case statement to perform basic math operation as follows

+ addition

- subtraction

x multiplication

/ division

NOTE- two numbers will be given as command line arguments.

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tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q9.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q9.sh

4

2

Enter 1 to add 2 to minus 3 to multiply 4 to divide

1

6

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q9.sh

4

2

Enter 1 to add 2 to minus 3 to multiply 4 to divide

2

2

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q9.sh

4

2

Enter 1 to add 2 to minus 3 to multiply 4 to divide

3

8

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q9.sh

4

2

Enter 1 to add 2 to minus 3 to multiply 4 to divide

4

2

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q9.sh

4

2

Enter 1 to add 2 to minus 3 to multiply 4 to divide

5

Invalid input

tejas@tejas-VirtualBox:~/practice$

assignment1\_q9.sh File------------🡪

#!/bin/bash

read x

read y

echo "Enter 1 to add 2 to minus 3 to multiply 4 to divide"

read var

case $var in

1)echo $[x+y];;

2) echo $[x-y];;

3) echo $[x\*y];;

4) echo $[x/y];;

\*) echo "Invalid input";;

esac

Q10. Write a script to find out biggest number from three given numbers. Numbers are supplied as command line arguments. Print error if sufficient arguments are not supplied.

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tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q10.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q10.sh

2

6

4

b is biggest 6

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q10.sh

6

4

1

a is biggest 6

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q10.sh

5

3

9

./assignment1\_q10.sh: line 10: echoc is biggest 9: command not found

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q10.sh

5

3

9

./assignment1\_q10.sh: line 10: echoc is biggest 9: command not found

tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q10.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q10.sh

5

3

9

c is biggest 9

tejas@tejas-VirtualBox:~/practice$

assignment1\_q10.sh------------🡪

#!/bin/bash

read a

read b

read c

if [ "$a" -gt "$b" ] && [ "$a" -gt "$c" ] ; then

echo "a is biggest $a"

elif [ "$b" -gt "$a" ] && [ "$b" -gt "$c" ]; then

echo "b is biggest $b"

else

echo "c is biggest $c"

fi

Q11. Write a program using while loop to print

0

1 0

2 1 0

3 2 1 0

4 3 2 1 0

5 4 3 2 1 0

6 5 4 3 2 1 0

7 6 5 4 3 2 1 0

8 7 6 5 4 3 2 1 0

9 8 7 6 5 4 3 2 1 0

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tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q11.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q11.sh

\0102103210432105432106543210765432108765432109876543210tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q11.sgedit assignment1\_q11.sh^C

tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q11.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q11.sh

0 1 0 2 1 0 3 2 1 0 4 3 2 1 0 5 4 3 2 1 0 6 5 4 3 2 1 0 7 6 5 4 3 2 1 0 8 7 6 5 4 3 2 1 0 9 8 7 6 5 4 3 2 1 0 tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q11.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q11.sh

0

1

0

2

1

0

1

0

tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q11.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q11.sh

0102103210432105432106543210765432108765432109876543210tejas@tejas-VirtualBox:~/practice$gedit assignment1\_q11.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q11.sh

0102103210432105432106543210765432108765432109876543210tejas@tejas-VirtualBox:~/practice$gedit assignment1\_q11.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q11.sh

0-n

10-n

210-n

3210-n

43210-n

543210-n

6543210-n

76543210-n

876543210-n

9876543210-n

tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q11.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q11.sh

0

10

210

3210

43210

543210

6543210

76543210

876543210

9876543210

tejas@tejas-VirtualBox:~/practice$

Assignment1\_11.sh File -----------🡪

#!/bin/bash

x=0

while [ "$x" -lt 10 ]

do

for (( i="$x"; "$i" >= 0 ; i="$i"-1 )); do

echo -n "$i"

done

echo " "

let "x= $x + 1"

done

Q12. 12. Write a program using for loop to print

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tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q12.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q12.sh

./assignment1\_q12.sh: line 5: ((: 1 -lt 4: syntax error in expression (error token is "4")

-n\*

-n\*

-n\*

-n\*

-n\*

-n\*

-n\*

-n\*

-n\*

-n\*

tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q12.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q12.sh

./assignment1\_q12.sh: line 5: ((: 1 -lt 4: syntax error in expression (error token is "4")

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tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q12.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q12.sh

./assignment1\_q12.sh: line 6: ((: 1 -lt 4: syntax error in expression (error token is "4")

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tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q12.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q12.sh

./assignment1\_q12.sh: line 6: ((: 1 -lt 4: syntax error in expression (error token is "4")

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tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q12.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q12.sh

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tejas@tejas-VirtualBox:~/practice$ ^C

tejas@tejas-VirtualBox:~/practice$

Assignment1\_q12.sh file ------------🡪

#!/bin/bash

x=4

for(( i=1; "$i" < "$x"; i= "$i"+1 ));

do

for (( j= "$i"; "$j" > 0; j= "$j"-1 ));

do

echo -n "\* "

done

echo " "

done

for (( l="$x"; "$l" > 0; l= "$l"-1 ));

do

for (( k= "$l"; "$k" > 0; k= "$k"-1 ));

do

echo -n "\* "

done

echo " "

done

Q13. Write a script to print given number in reverse order, for eg. If number is 123, it must print as

321.

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tejas@tejas-VirtualBox:~$ cd practice

tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q13.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q13.sh

123

3

23

tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q13.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q13.sh

123

123

23

3

tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q13.sh

tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q13.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q13.sh

123

321

tejas@tejas-VirtualBox:~/practice$

Assignment1\_q13.sh------🡪

#!/bin/bash

read num

while [ $num != 0 ]

do

d=$(($num % 10 ))

num=$(($num / 10 ))

rev=$( echo ${rev}${d} )

done

echo $rev

Q14. Write script to print the sum of all the digits of a given number. For eg. If the number is 123, sum of all the digits will be 1+2+3 = 6.

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tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q14.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q14.sh

bash: ./assignment1\_q14.sh: Permission denied

tejas@tejas-VirtualBox:~/practice$ chmod u+x assignment1\_q14.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q14.sh

123

./assignment1\_q14.sh: line 7: [num: command not found

./assignment1\_q14.sh: line 8: [sum: command not found

./assignment1\_q14.sh: line 9: [num: command not found

./assignment1\_q14.sh: line 7: [num: command not found

./assignment1\_q14.sh: line 8: [sum: command not found

./assignment1\_q14.sh: line 9: [num: command not found

^Ctejas@tejas-VirtualBox:~/practice$

tejas@tejas-VirtualBox:~/practice$ gedit assignment1\_q14.sh

tejas@tejas-VirtualBox:~/practice$ ./assignment1\_q14.sh

123

6

tejas@tejas-VirtualBox:~/practice$

Assignment1\_q14.sh file ------------------------🡪

#!/bin/bash

read num

sum=0

while [ $num -gt 0 ]

do

mod=$((num % 10)) #It will split each digits

sum=$((sum + mod)) #Add each digit to sum

num=$((num / 10))

done

echo $sum

Q15 Create a file named file.txt and write a shell script to check is a file is readable , writable and executable.

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