

Particulars of the Experiments Performed

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Particulars of the Experiments Performed CONTENTS

Lab Program 1.

1. Shell script to find given year is leap or not

```
#!/bin/sh
```

```
echo "Enter the year"
```

```
read y
```

```
if [ `expr $y % 100` -eq 0 ]; then
```

```
    if [ `expr $y % 4` -eq 0 ]; then
```

```
        echo "Given year is not a leap year"
```

```
    else
```

```
        echo "Given year is a leap year"
```

```
    fi
```

```
else
```

```
    if [ `expr $y % 100` -eq 0 ]; then
```

```
        echo "Not a leap year"
```

```
    else
```

```
        echo "Not a leap year"
```

```
    fi
```

```
fi
```

Enter the year

1600

Given year is a leap year

Lab Program 2

Q. Shell script to find area of a circle

#!/bin/sh

```
echo "Enter the radius : "
read radius
```

```
area=$(echo "3.14 * $radius * $radius" | bc)
```

```
echo "Area of circle - $area " sq.units"
```

10.05.2021

1. user-defined

Java program to accept radius from the user and calculate area.

OUTPUT

Enter the radius

2

12.56 sq.units

Lab Program 3.

3. Shell script to find whether the number is zero/positive/negative

```
#!/bin/sh
```

```
echo "Enter the number"
read n
if [ $n -eq 0 ]; then
    echo "Given number is zero"
elif [ $n -lt 0 ]; then
    echo "Given number is negative"
else
    echo "Given number is positive"
fi
```

OUTPUT

Enter the number

4

Given number is positive

150/125

Lab Program 4.

4. Shell script to find biggest of three numbers .

`#!/bin/sh`

`echo "Enter the numbers"`

`read a b c` .

`if [$a -gt $b] ; then`

`if [$a -gt $c] ; then`

`echo $a "is greater"`

`elif [$c -gt $a] ; then`

`echo $c "is greater"`

`fi`

`else`

`if [$c -gt $b] ; then`

`echo $c "is greater"`

`else`

`echo $b "is greater"`

`fi`

`fi`

Ques. 3

Writing program in C language with function for input & output.

OUTPUT

Enter the numbers

5 10 15

15 is greater

1509/01/25 4/

Lab program 5

5. Shell script to find factorial of a number.

```
#!/bin/sh
```

```
echo "Enter the number"
```

```
read num
```

```
fact = 1
```

```
while [ $num -gt 1 ]
```

```
do
```

```
fact=$((fact*num))
```

```
num=$((num-1))
```

```
done
```

```
echo "The factorial of given number is"
```

```
echo $fact
```

OUTPUT

Enter the number

4

The factorial of given number is?

24

Lab program 6.

6. Shell script to compute gross salary of an employee

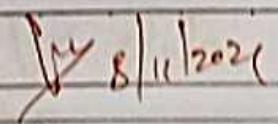
```
#!/bin/sh
```

```
echo "Enter the basic salary"
read bs
```

```
hra='expr 20 \* $bs / 100'
da='expr 10 \* $bs / 100'
```

```
echo "Gross salary is `expr $bs + $hra + $da`"
```

Teacher's Signature :

 8/11/2021

OUTPUT

Enter the basic salary
1000

Gross salary is 1300

Lab program 1

7. shell script to convert the temperature Fahrenheit to Celsius

#!/bin/sh

echo "Enter the temperature in fahrenheit"

read tmpf

tmpc=\$(echo "Scale=2; \$(5/9)*(\$tmpf-32)" | bc)

echo "The temperature in celsius is : "

echo \$tmpc

OUTPUT

Enter the temperature in fahrenheit

68

The temperature in celsius is

20

Lab program 8.

8 shell script to perform arithmetic operations on given two numbers.

```
#!/bin/sh
```

```
echo "Enter two numbers"
```

```
read a b
```

```
echo "Enter your choice ? (1 to 5)"
```

```
echo "1)Sum 2)Difference 3)Product 4)Quotient 5)Remainder"
```

```
echo "Enter your choice"
```

```
read n
```

```
case "$n" in
```

- 1) echo "The sum of \$a and \$b is `expr \$a + \$b | bc`";;

- 2) echo "The difference between \$a and \$b is `expr \$a - \$b | bc`";;

- 3) echo "The Product of the \$a and \$b is `expr \$a * \$b | bc`";;

- 4) echo "The Quotient of \$a by \$b is `expr \$a / \$b | bc`";;

- 5) echo "The Remainder of \$a by \$b is `expr \$a % \$b | bc`";;

```
esac .
```

Teacher's Signature:

8/1/21 A

OUTPUT

Enter two numbers

1 2

Enter your choice

- 1) Sum 2) Difference 3) Product 4) Quotient 5) Remainder

Enter (your choice)

1

The sum of 1 and 2 is 3

Lab Program 9 .

9. Shell script to find sum of even numbers upto n .

`#!/bin/bash` .

`echo "Enter the value of n"`

`read n`

`i=2`

`while [$i -le $n]`

`do`

`sum=$((sum+i))`

`i=$((i+2))`

`done`

`echo "Sum of even numbers upto $n : "`

`echo $sum` .

Teacher's Signature : _____

~~8 Aug 2011~~

more in width, situated just in front of middle

OUTPUT

Enter the value of n

4

Sum of even numbers upto 4: 2 + 4 + 6 + 8 = 20

6

6 night (i) in the (i) hawk (i) wind (i) moon (i) "wind" sing wind cedar

"wind" and "wind" colors

19. 1938

in front

"Så i det etages i de høje ej paa mod alle 9 ude i

"sd 1 32 - ab 20x" in dit hout af enkelvoudig geschilderd de' min (2)

Salad of fresh wild mushrooms with a balsamic vinaigrette.

and it's not what we do is important, it's who we are.

It is likely that the first task is to identify who else (S)

卷之三

Lab Program 10.

10. Shell script to print combinations of 1 2 3.
#!/bin/sh

echo "Combinations of 1 2 3"

for i in 1 2 3.

do

for j in 1 2 3.

do

for k in 1 2 3.

do

if [\$i -ne \$j -a \$j -ne -\$k -a \$k -ne \$i]; then
echo \$i \$j \$k.

fi

done

done

done .

OUTPUT

Combinations of 1 2 3.

1 1 1

1 1 2

1 1 3

1 2 1

1 2 2

1 2 3

1 3 1

1 3 2

1 3 3

2 1 1

2 1 2

2 1 3

2 2 1

2 2 2

2 2 3

2 3 1

2 3 2

2 3 3

3 1 1

3 1 2

3 1 3

3 2 1

3 2 2

3 2 3

3 3 1

3 3 2

3 3 3

Lab Program 11

11. Shell script to find the power of a number :

=11/bun/sh

echo "Enter the number: "; read n.

echo "Enter the power of number"

read pow.

count=1

ans=1

while [\$count -le \$pow]

do

ans=\$((ans*n))

count=\$((count+1))

done

echo "Power \$pow of number \$n is : "

echo \$ans.

OUTPUT

Enter the number :

2

Enter the power of number

3

Power 3 of number 2 is :

8

Lab Program 12.

Q. Write a shell script to find sum of n natural numbers
#!/bin/sh

echo "Enter the value of n:"

read n

count=1

while [\$count -le \$n]

do

ans=\$((ans+count))

count=\$((count+1))

done

echo "Sum of \$n natural numbers is : "

echo \$ans

10. Input data

OUTPUT

Enter the value of n :

4

Sum of 4 natural numbers is :

10

$$((1+2+3+4)) = 10$$

$$(1+2+3+4) = 10$$

100% correct

Lab Program 13

13 Shell script to display pass class of a student
#!/bin/sh

echo "Enter the number of courses"

read no

count=1

while [\$count -le \$no]

do

echo "Enter cie marks for course \$count : "

read ciem

echo "Enter see marks for course \$count : "

read seem

seem=\$(((\$ciem+\$seem)/2))

tmarks=\$(((\$ciem+\$seem)))

echo "Grade for first subject \$count marks \$tmarks : "

if [\$tmarks -ge 90 -a \$tmarks -le 100]; then

echo "GRADE A\n"

elif [\$tmarks -ge 80 -a \$tmarks -le 89]; then

echo "GRADE A+\n"

elif [\$tmarks -ge 70 -a \$tmarks -le 79]; then

echo "GRADE B-\n"

elif [\$tmarks -ge 60 -a \$tmarks -le 69]; then

echo "GRADE C-\n"

elif [\$tmarks -ge 50 -a \$tmarks -le 59]; then

echo "GRADE D-\n"

Teacher's Signature :

if [\$marks -ge 40 -a. \$marks -le 49]; then
echo "GRADE C\n"

else

echo "FAIL\n"

fi

count=\$((count+1))

done

Scot-II-21

Pythagoras

15 simple lab

OUTPUT answer location is for next half of page this is
definitely

Enter the number of courses

1

Enter cie marks for course 1 :

23

Enter see marks for course 1 [if w- than 1] [else]

100

Grade for first subject 1 marks 73

GRADE B

Lab Program 14

14. Shell script find fibonacci series upto n.
~~#!/bin/sh~~

echo "Enter the value of n"
 read n

x=0

i=1

j=2

echo "Fibonacci series upto \$n terms"

echo "\$x"

echo "\$i"

while [\$j -lt \$n]

do

j=`expr \$j + 1`

z=`expr \$x + \$i`

echo '\$z'

x=\$i i=\$z

done.

OUTPUT

Enter the value of n

5

fibonacci series upto 5 terms

0

1

1

2

3

Lab Program 15

15. Shell script to count number of vowels of a string

#!/bin/sh

echo "Enter the string"
read string

length=\${#string}

count=0

while [\$length -gt 0]

do

char=\$(echo \$string | cut -c \$length)

case \$char in

[aeiouAEIOU])

count=\$((count+1))

echo \$char;;

esac

length=\$((length-1))

done

echo "The number of vowels"

echo \$count

21. program

PI assignment 4/10/14

OUTPUT

Enter the string

vowel

e

o

The number of vowels

2

Lab Program 16 .

16. Shell script to check number of lines, words, characters in a file

#!/bin/sh

```
echo "Enter the filename"
read fname
echo "Number of lines"
lines=`cat $fname | wc -l`
echo $lines
echo "Number of characters"
char=`cat $fname | wc -c`
echo $char
echo "Number of words"
words=`cat $fname | wc -w`
echo $words .
```

OUTPUT

Output

Enter the filename
file

Number of lines

1

Number of characters

9

Number of words

2

Q1. Write a C/C++ program to print contents of environment in

```
#include <stdio.h>
```

```
int main(int argc, char* argv[ ]) {
```

```
    int i;
```

```
    char **ptr;
```

```
    extern char **environ;
```

```
    for(ptr = environ; *ptr != 0; ptr++) {
```

```
        printf("%s\n", *ptr);
```

```
    }
```

```
}
```

OUTPUT

SSH-AGENT PID = 3207

HOSTNAME = localhost.domain

DESKTOP_STARTUP_ID =

SHELL = /bin/bash

TERM = xterm

HISTSIZE = 1000

KDE_NO_IPV6 = 1

GTK_RC_FILES = /etc/gtkrc; front-gtkrc = 1.2-gnome2

WINDOWID = 400040273

OLPPWD = /root/tan

QTDIR = /usr/lib/qt-3.3

QTINC = /usr/lib/qt-3.3/include

USER = root

LS_COLORS = no=00: fi=00:di=00;34:1

GNOME_KEYRING_SOCKET = /tmp/keyring-veDBVL/socket

SSH_AUTH_SOCK = /tmp/ssh-SEWJH13149/agent.3149

KDEDIR = /usr

SESSION_MANAGER = local/localhost.localdomain: /tmp/.ICE-unix/3149

MAIL = /var/spool/mail/root

DESKTOP_SESSION = default

PATH = /usr/lib/qt-3.3/bin:/usr/kubras/sbin:/usr/kerberos/bin:/usr/local/sbin:/usr/local/bin:/sbin:/bin:/usr/sbin:/usr/bin

GDM_XSERVER_LOCATION = local

INPUTRC = /etc/inputrc

PWD = /root/tan/usr

XMODIFIERS = @im=none

KDE_IS_PRELINKED = 1

XAUTHORITY = /tmp/.X11-unix/X0

GDMSESSION = default

SSH-ASKPASS = /usr/share/gnome-gnome-ssh-askpass

HOME = /root

SHLVL = 2

GNOME_DESKTOP_SESSION_ID = default

LOGNAME = root

OTRIB = /usr/lib/gc-3.3/lib

CVE-RCM = ssh

DBUS_SESSION_BUS_ADDRESS = unix:abstract=/tmp/dbus/VdV4tsma
grud. fd7759511fe6ad691b249b4f2809fa00

LESSOPEN = /usr/bin/lesspipe.sh % \$

DISPLAY = 0.0.

GNOME_EENAMES = 1

COLORTERM = gnome-terminal

XAUTHORITY = /tmp/.gdm5V710W

-/a.out

Write a C/C++ program to emulate ln command

```
#include <stdio.h>
#include <sys/types.h>
#include <unistd.h>
#include <string.h>

int main(int argc, char *argv[])
{
    if (argc < 3 || argc > 4 || (argc == 4 && strcmp(argv[3], "-s")))
        printf("Usage : ./a.out [-s] <orig-file> <new-link>\n");
    return 1;
}

if (argc == 4)
{
    if (symlink(argv[2], argv[3]) == -1)
        printf("Cannot create symbolic link\n");
    else
        printf("Symbolic link created\n");
}

if (link(argv[1], argv[2]) == -1)
    printf("Cannot create hard link\n");
else
    printf("Hard link created\n");

return 0;
}
```

Teacher's Signature : _____

OUTPUT

```
$ cc -o lab16 lab16.c
$ ./lab16 -S lab17.c test .
symbolic link created
-rw-rw-r-- 1 vaibhav vaibhav 195 Jan 21 18:30 lab16.c
-rw-rw-rw-x 1 vaibhav vaibhav 1 Jan 21 18:38 test → lab16.c
```

```
$ ./lab16 lab17.c test2
```

```
-rw-rw-r-- 2 vaibhav vaibhav 195 Jan 21 18:30 lab16.c
-rw-rw-r-- 2 vaibhav vaibhav 195 Jan 21 18:30 test2
```

Write a C/C++ POSIX compliant program that prints the POSIX defined configuration option supported on any given system using #define宏.

```
#define _POSIX_SOURCE
```

```
#define _POSIX_C_SOURCE 199309L
```

```
#include <stdio.h>
```

```
#include <unistd.h>
```

```
int main()
```

```
{
```

```
#ifdef _POSIX_JOB_CONTROL
```

```
printf("System supports job control\n");
```

```
#else
```

```
printf("System does not support job control\n");
```

```
#endif
```

```
#ifdef _POSIX_SAVED_IDS
```

```
printf("System supports saved set-UID's and saved set-GID\n");
```

```
#else
```

```
printf("System does not support saved set-UID's and saved set-GID\n");
```

```
#endif
```

```
#ifdef _POSIX_CHOWN_RESTRICTED
```

```
printf("chown restricted option is %d\n", _POSIX_CHOWN_RESTRICTED);
```

```
else
```

```
printf("System does not support chown restricted option\n");
```

```
#endif
```

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```
#ifdef _POSIX_NO_TRUNC
printf("pathname trunc option is %d\n", -POSIX_NO_TRUNC);
#else
#ifndef _POSIX_VDISABLE
printf("disable character for terminal files is %d\n", -POSIX_VDISABLE);
#endif
printf("system doesn't support _POSIX_VDISABLE\n");
#endif

return 0;
}
```

P1. Linux

81. nmap

Parameters and Default Configuration File

OUTPUT

```
$ cc -o lab19 lab19.c
```

```
$ ./lab19 lab19.c
```

System supports job control

System supports saved set-UID and saved set-GID
chown restricted option is 0.

(Pathname Trunc option is 1)

Disable character for terminal files is 0

Write a C/C++ program which demonstrates interprocess communication between a reader process and a writer process.
Use mkfifo, open, read, write close apis in your program.

```
#include <sys/types.h>
#include <unistd.h>
#include <fcntl.h>
#include <sys/stat.h>
#include <string.h>
#include <errno.h>
#include <stdio.h>
```

```
int main(int argc, char* argv[])
{
```

```
    int fd;
```

```
    uchar buf[56];
```

```
    if (argc != 2 && argc != 3)
```

```
    {
```

```
        printf("Usage : %s <file> [<arg>]\n", argv[0]);
```

```
        return 0;
```

```
}
```

```
mkfifo(argv[1], S_IFIFO | S_IRWXV | S_IREWXG | S_IRWXU);
```

```
if (argc == 2)
```

{

```
fd = open(argv[1], O_RDONLY | O_NONBLOCK);  
while (read(fd, buf, sizeof(buf)) > 0)  
    printf("%s", buf);
```

}

else

{

```
fd = open(argv[1], O_WRONLY);  
write(fd, argv[2], strlen(argv[2]));
```

}

close(fd);

}

Lab No 3

07/10/09

OUTPUT:

\$ cc -o lab20 lab20.c

\$./lab20 file "This is my lab".? writer process.

\$./lab20 file ? reader process
This is my lab ? reader process