ACADMIC TAST-3

OPERATING SYSTEM

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GITHUB LINK: https://github.com/8642rt/OS-Assignment/tree/master

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CODE-1:C PROGRAM

```
#include<stdio.h>,

#include<pthread.h>

int arr[50],n,i;


void *th()

{

int sum=0;

float average;

printf("enter your number :=");

scanf("%d",&n);

for(i=0;i<n;i++)

{

scanf("%d",&arr[i]);
```

```
}

for(i=0;i<n;i++)
```

```
{
sum=sum+arr[i];
}
average=sum/n;
printf("The average value is:%f",average);
}
void *th1()
{


int temp=arr[0];
for(int i=1;i<n;i++)
{
if(temp>arr[i])
{
temp=arr[i];
}
}
printf("\nThe Minimum value is:=%d",temp);
```

```
}
void *th2()
{


int temp=arr[0];
for(int i=1;i<n;i++)
{
if(temp<arr[i])
{
```

```
temp=arr[i];
}
}
printf("\nThe Maximum value is:=%d",temp);
}
int main()
{
int n,i;
pthread_t t1;
pthread_t t2;
pthread_t t3;
n=pthread_create(&t1,NULL,&th,NULL);
pthread_join(t1,NULL);
//printf("\n done and my value is %d",n);
n=pthread_create(&t2,NULL,&th1,NULL);
pthread_join(t2,NULL);
//printf("\n done and my value is %d",n);
n=pthread_create(&t3,NULL,&th2,NULL);
pthread_join(t3,NULL);
//printf("\n done and my value is %d",n);
```

}

DISCRIPTION OF PROBLEM IN TERM OF OPERATING SYSTEM:

Write a multithreaded program that calculates various statistical values for a list of numbers. This program will be passed a series of numbers on the command line and will then create three separate worker threads. One thread will

determine the average of the numbers, the second will determine the maximum value, and the third will determine the minimum value. For example, suppose your program is passed the integers 90 81 78 95 79 72 85 The program will report The average value is 82 The minimum value is 72 The maximum value is 95 The variables representing the average, minimum, and maximum values will be stored globally. The worker threads will set these values, and the parent thread will output the values once the workers have exited.

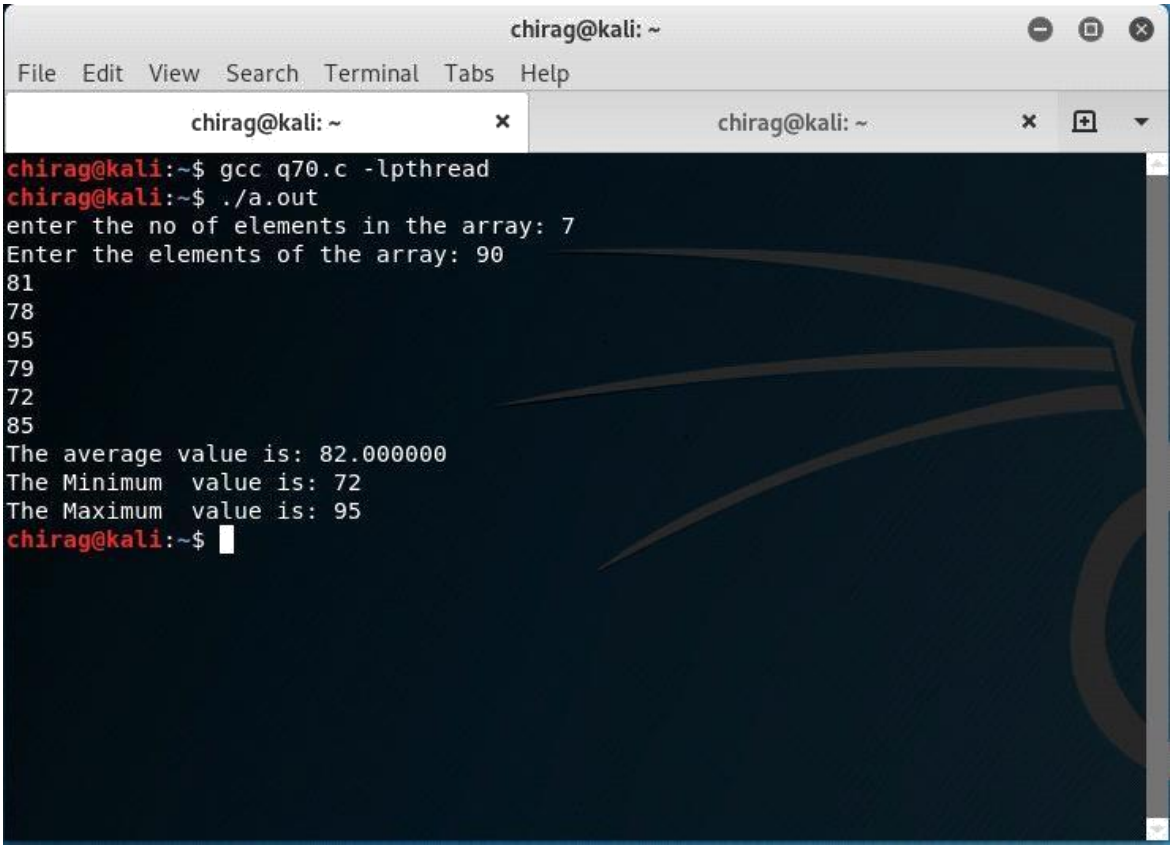
ALGORITHEM:

1.We have created array of size 50 character

2.We use the for loop

3.We have use if condition in many places

TEST CASE APPLIED:



CODE-2:C PROGRAM

```
#include<stdio.h>,

#include<string.h>

#include<stdlib.h>

#include<unistd.h>

#include<sys/types.h>

int main()

{

char str[100];

printf("enter the string :");

int i=0;
```

```
while(i<10){
scanf("%c",&str[i]);
i++;}
int fd[2];
write(fd[1],str,strlen(str));
printf("pid is %d for wiring in pipe - ",getpid());
int y=strlen(str);
printf("\n\n we have Written in pipe :%s\n",str);
for(i=0;i<strlen(str);i++)
{
if((int)str[i]>=65 && (int)str[i]<=90)
{
str[i]=(int)str[i]+32;

}
else if((int)str[i]>=97 && (int)str[i]<=122)
{
str[i]=(int)str[i]-32;

}
```

```
}
close(fd[0]);
read(fd[0],str,strlen(str));
printf("\n\npid is %d for reading in pipe ",getpid());
printf("\n\nreading from the file :%s\n",str);


}
```

DISCRIPTION OF PROBLEM IN TERMS OF OPERATING SYSTEM:

Design a program using concepts of inter-process communication ordinary pipes in which one process sends a string message to a second process, and the second process reverses the case of each character in the message and sends it back to the first process

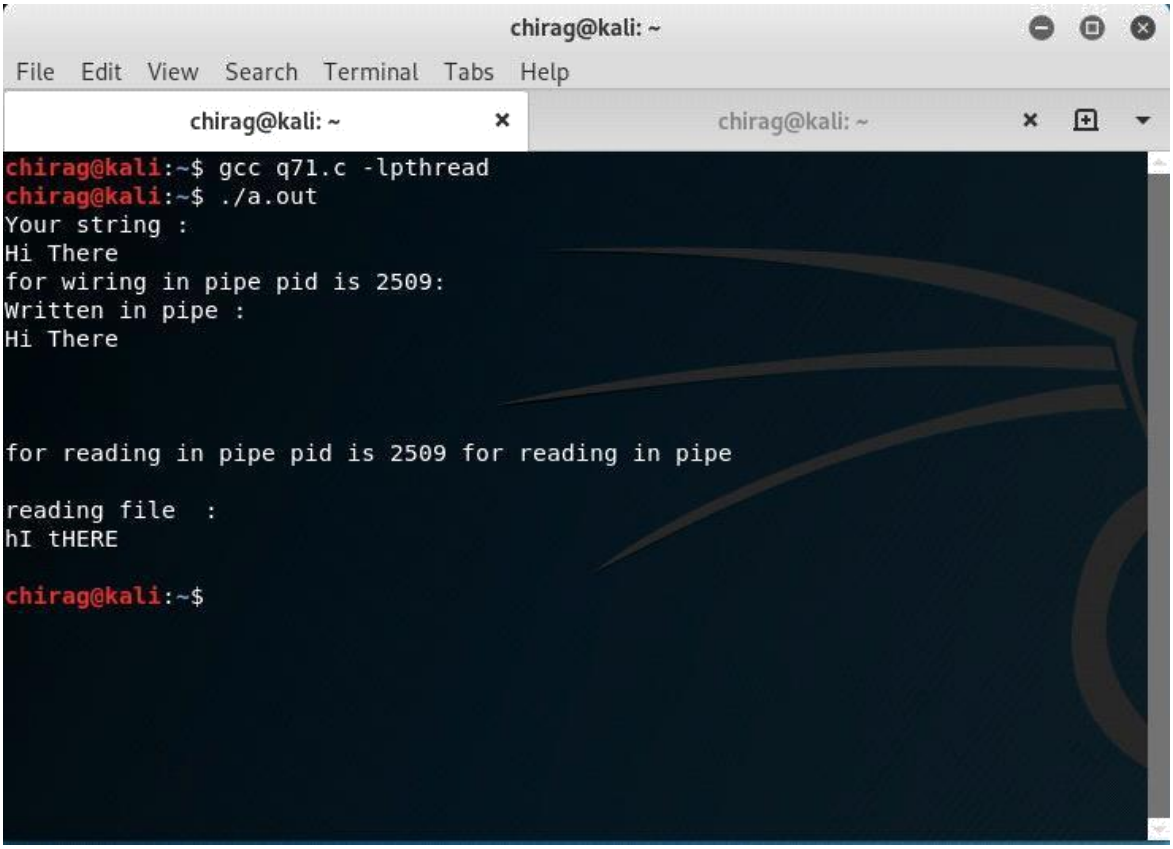
ALGORITHM:

1.In this c program we string of 100 elements

2.we use the while loop

We use the if/else condition

Test Case Applied:


chirag@kali: ~
File Edit View Search Terminal Tabs Help
chirag@kali: ~
chirag@kali: ~
chirag@kali:~$ gcc q71.c -lpthread
chirag@kali:~$ ./a.out
Your string :
Hi There
for wiring in pipe pid is 2509:
Written in pipe :
Hi There
for reading in pipe pid is 2509 for reading in pipe
reading file :
hI tHERE
chirag@kali:~$