

Term Work

# On

**Operating System**

# (PCS 506)

## Submitted to: Submitted by:

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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

## GRTAPHIC ERA HILL UNIVERSITY, DEHRADUN



##### DEPARTMENT OF CSE STUDENT LAB REPORT SHEET

Photograph Passport Size

**Name of Student .................................................... Mob. No ......................................**

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**Section ............ Branch ............ Semester ............ Class Roll No ............ Grade A B C Local Address ................................... Email ............................................ Marks 5 3 1**

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**PRACTICAL 1**

**Question:** Write a C program to demonstrate the use of fork() system call.

##### About Fork() function:

Fork system call is used to create new process which is called child process which runs concurrently with the parent process. Parent process is the process which makes the fork() call. Fork() function is defined in header unistd.

Fork() system call is Unix/Linux specific system call. PID is Process Identification Number on Linux/Unix OS.

##### Source Code:

#include<stdio.h> #include<unistd.h>

int main()

{

printf("\nName – Hitesh Kandpal \nSection - A \nStudent id - 2018380\n\n");

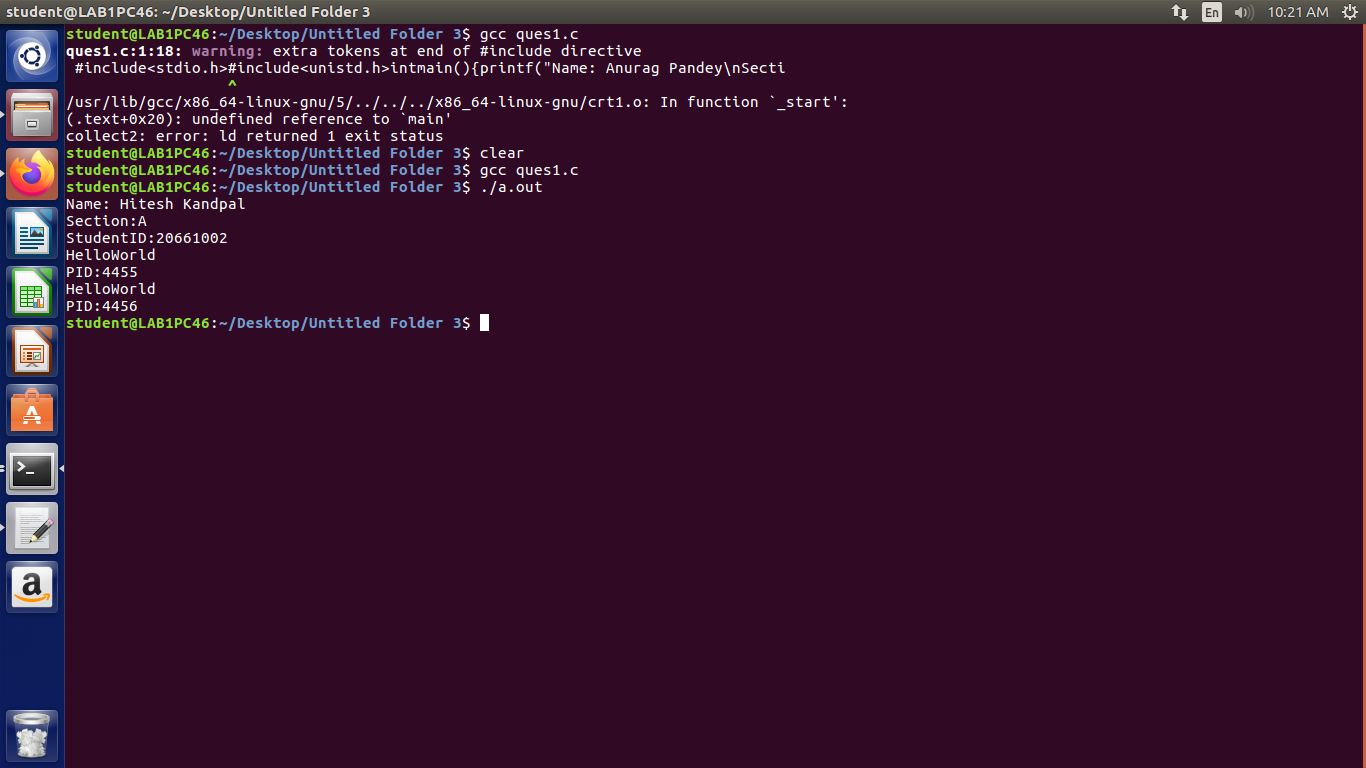
fork();

printf("Hello World!\n"); printf("Get PID: %d\n\n", getpid());

return 0;

}

**Output:**

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#### PRACTICAL 2

**Question:** Write a C program in which parent process computes the sum of even Numbers and child process computes the sum of odd number stored in an array using a fork().

First the child process should print its answer i.e sum of odd number then the parent process should print its answer i.e the sum of even number.

**PID:** PID is Process Identification Number on Linux/Unix OS. In child process, it returns 0

##### Source Code:

#include<stdio.h> #include<unistd.h> int main()

{

printf("Name – Hitesh Kandpal \nSection - A \nStudent ID - 2018380n\n");

int even\_sum = 0, odd\_sum = 0, n;

printf("Enter size of array: "); scanf("%d",&n);

int arr[n];

printf("Enter numbers:\n"); for(int i = 0; i < n; i++)

{

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

}

int pid = fork(); if(pid == 0)

{

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

{

if(arr[i]%2 != 0)

odd\_sum += arr[i];

}

printf("Sum of Odd Numbers: %d\n", odd\_sum);

}

else

{

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

{

if(arr[i]%2 == 0)

even\_sum += arr[i];

}

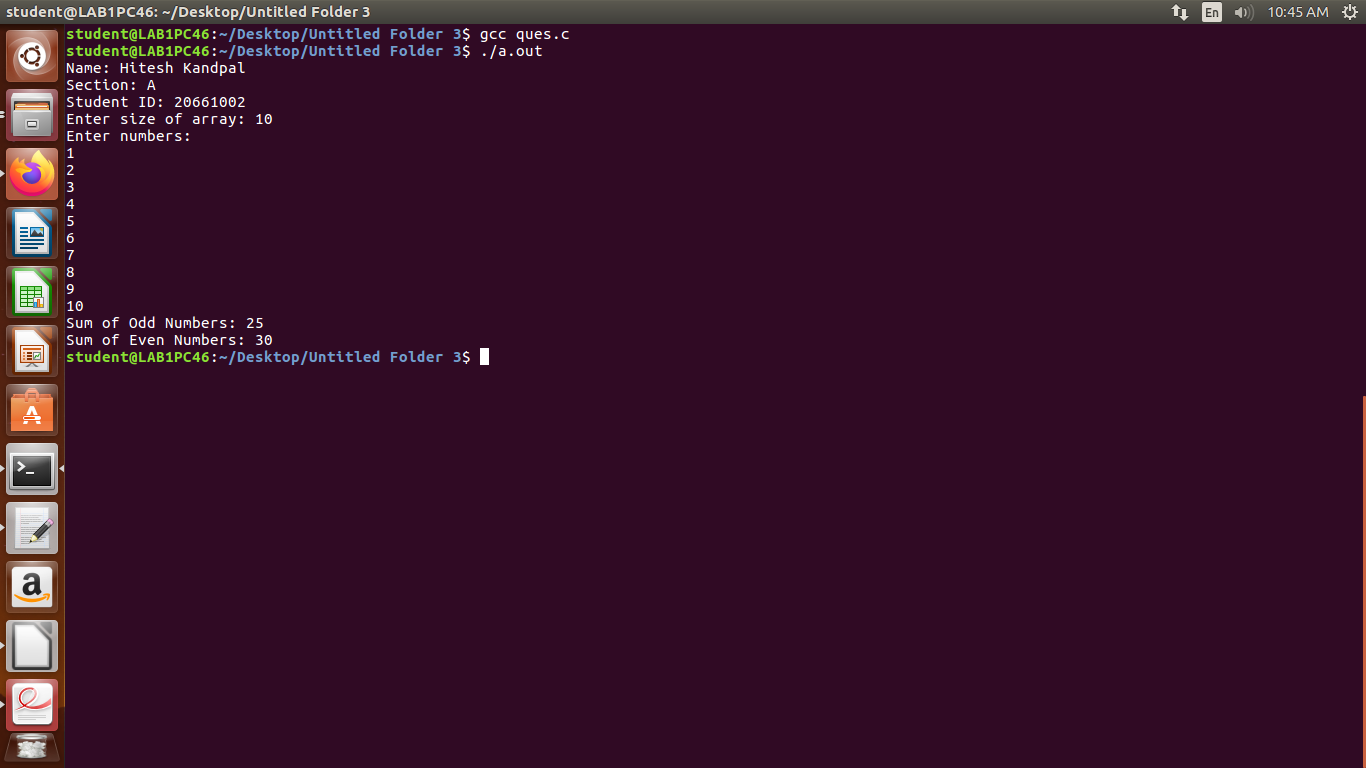
printf("Sum of Even Numbers: %d\n",even\_sum);

}

return 0;

}

##### Output:



#### PRACTICAL 3

**Question:** Write a C program to demonstrate Orphan Process using fork function.

**Orphan Process:** A zombie process is a process whose execution is completed but it still has an entry in the process table. Zombie processes usually occur for child processes, as the parent process still needs to read its child’s exit status. Once this is done using the wait system call, the zombie process is eliminated from the process table. This is known as reaping the zombie process.

##### Source Code:

#include<stdio.h>

#include<unistd.h>

#include<stdlib.h>

int main()

{

printf("Name – Hitesh Kandpal \nSection - A \nStudent ID – 2018380\n\n");

int pid = fork();

if(pid!=0)

{

printf("parent process \n ");

exit(0);

}

else if (pid==0){

sleep(2);

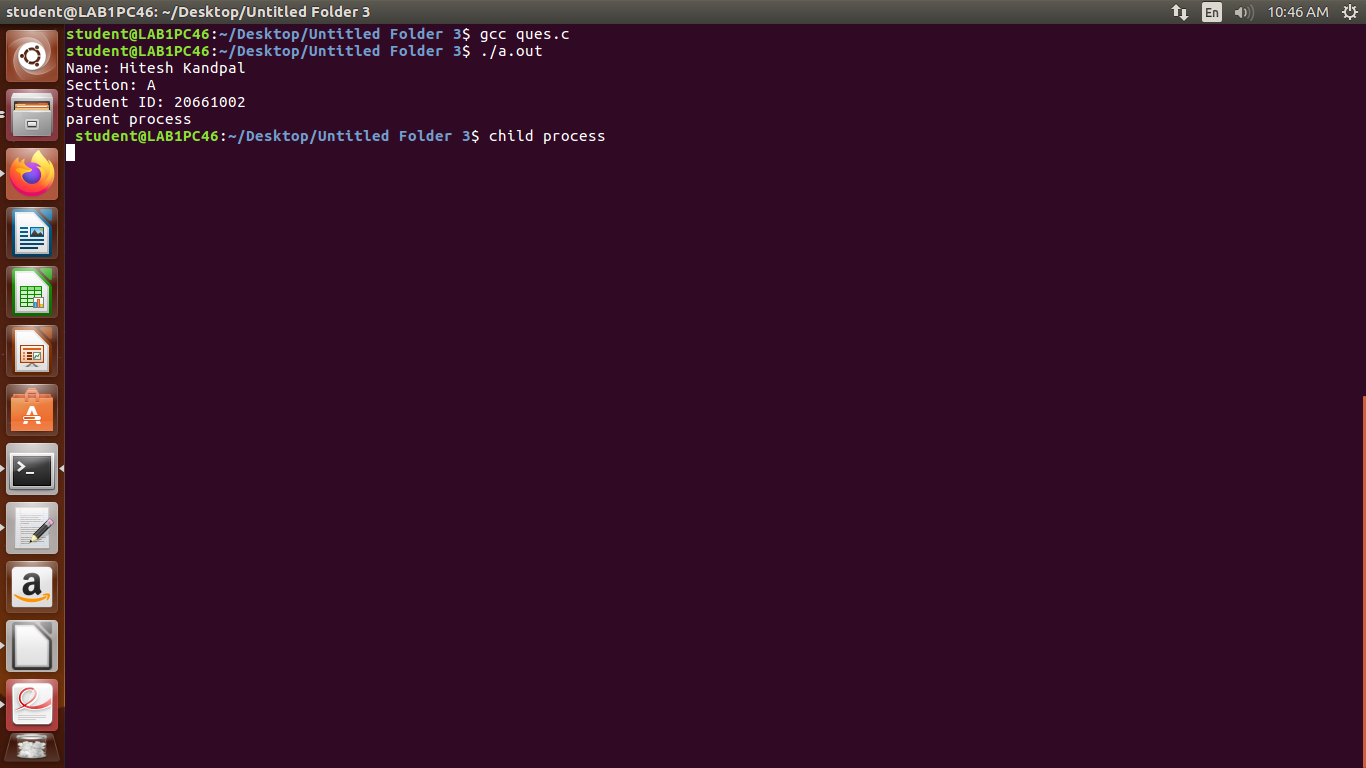
printf("child process \n");

}

return 0;

}

##### Output:



#### PRACTICAL 4

**Question:** Write a C program to demonstrate Zombie Process using fork function.

**Zombie Process:**A zombie process is a process whose execution is completed but it still has an entry in the process table. Zombie processes usually occur for child processes, as the parent process still needs to read its child’s exit status. Once this is done using the wait system call, the zombie process is eliminated from the process table.

##### Source Code:

#include<stdio.h>

#include<unistd.h>

#include<stdlib.h>

int main()

{

printf("Name – Hitesh Kandpal \nSection - A \nStudent ID - 2018380n\n");

int pid = fork();

if(pid!=0)

{

sleep(2);

printf("parent process \n ");

}

else

{

printf("child process \n");

exit(0);

}

return 0;

}

##### Output:

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