

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

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

**Address Permanent .....................................................................................................**

**Father’s Name ........................... Occupation ...................... Mob. No .........................**

**Mother’s Name ........................... Occupation ...................... Mob. No .......................**

**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 – Vishal Joshi \nSection - A \nStudent id - 20011368\n\n");

fork();

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

return 0;

}

**OUTPUT-1**

A screenshot of a computer

Description automatically generated

#### 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 – Vishal Joshi \nSection - A \nStudent ID - 20011368\n\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-2**

A screenshot of a computer

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**PROGRAM-3**

**Question:** Write a C program to demonstrate the Zombie Process.

**Zombie Process:** A Process that has finished execution but has still entry in the process table to report to its parent process is known as zombie process. A child process always first becomes a zombie before being removed from the process table.

##### Source Code:

#include <stdlib.h>

#include <sys/types.h>

#include <unistd.h>

int main()

{

printf(“Vishal Joshi Sec: A ID:20011368 \n\n ”);

pid\_t child\_pid = fork();

// Parent process

if (child\_pid > 0){

sleep(10);

printf("This is the parent process after a delay of 10 seconds.\n");

}

// Child process

else

exit(0);

return 0;

}

**OUTPUT-3**

A screenshot of a computer

Description automatically generated

**PRACTICAL-4**

**Question:** Write a C program to demonstrate the Orphan Process.

##### About Fork() function:

##### A process whose parent process does not exist i.e either finished or terminated without waiting for its child process to terminate is called an orphan process.

##### Source code:

##### // A C program to demons

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

##### #include <sys/types.h>

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

##### int main()

##### {

##### printf("Vishal Joshi Sec:A Id: 20011368\n\n");

##### // Create a child process

##### int pid = fork();

##### if (pid > 0)

##### printf("Parent Process.\n\n");

##### 

##### else if (pid == 0)

##### {

##### sleep(10);

##### printf("Child Process after 10 seconds.\n");

##### }

##### return 0;

##### }

##### Output-4

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