PROGRAM 1:

```
I am the parent process.
I am the child process.
My PID is 13154.
My parent's PID is 13153.
My PID is 13153.
My child's PID is 13154.
```

PROGRAM 2:

```
Enter the filename to open for reading
mail
Cannot open file mail
```

PROGRAM 3:

```
Enter the number of processes: 3
Enter burst time for process 1: 4
Enter burst time for process 2: 3
Enter burst time for process 3: 2
Process Burst Time  Completion Time Turnaround Time
1       4       4           0
2       3       7           7
3       2       9           9
```

PROGRAM 4:

```
Enter number of process: 3
Enter Burst Time:
P1: 2
P2: 5
P3: 6
P    BT  WT  TAT
P1   2   0   2
P2   5   2   7
P3   6   7   13
Average Waiting Time= 3.000000
Average Turnaround Time= 7.333333
```

PROGRAM 5:

```
/tmp/Y1eL32HWvQ.o
Enter number of process: 3
Enter Burst Time:
P1: 2
P2: 5
P3: 3
P    BT  WT  TAT
P1   2   0   2
P3   3   2   5
P2   5   5   10
Average Waiting Time= 2.333333
Average Turnaround Time= 5.666667
```

PROGRAM 6:

```
Enter the number of the process
3
Enter the arrival time , burst time and priority of the process
AT BT PT
1 2 3
2 3 4
5 6 7
ID WT TAT
1 0 2
2 1 4
3 1 7
Avg waiting time of the process  is 0.666667
Avg turn around time of the process is 4.333333
```

PROGRAM 7:

```
enter the no of processes : 2
the arrival time for process P1 : 0
the burst time for process P1 : 3
the arrival time for process P2 : 1
the burst time for process P2 : 5
P[1]    |   3   |   0
P[2]    |   7   |   2


 average waiting time = 1.000000

 average turnaround time = 5.000000
```

PROGRAM 8:

```
Enter Total Process:     2
Enter Arrival Time and Burst Time for Process Process Number 1 :0 4
Enter Arrival Time and Burst Time for Process Process Number 2 :2 4
Enter Time Quantum: 2
Process |Turnaround Time|Waiting Time

P[1]    |   6   |   2
P[2]    |   6   |   2

Average Waiting Time= 2.000000
Avg Turnaround Time = 6.000000
```

PROGRAM 9:

Output

```
/tmp/DwwEB0QakL.o
Key of shared memory is 0
Process attached at 0x7fe5c1596000
Enter some data to write to shared memory
OPERATING SYSTEM
You wrote : OPERATING SYSTEM
```

PROGRAM 11:

Output

```
/tmp/xEqnbxYCx0.o
Thread function running...
Thread function running...
Thread function running...
Thread function running...
Thread function running...
Thread function running...
Thread function running...
Thread function running...
Thread function running...
Thread function running...
```

PROGRAM 12:

```
Philosopher 0 is thinking...
Philosopher 1 is thinking...
Philosopher 2 is thinking...
Philosopher 4 is thinking...
Philosopher 3 is thinking...
Philosopher 0 is hungry...
Philosopher 0 is eating...
Philosopher 1 is hungry...
Philosopher 2 is hungry...
Philosopher 2 is eating...
Philosopher 4 is hungry...
Philosopher 3 is hungry...
Philosopher 4 is eating...
Philosopher 0 is thinking...
Philosopher 1 is eating...
Philosopher 2 is thinking...
Philosopher 0 is hungry...
Philosopher 1 is thinking...
```

PROGRAM 13:

```
Output
/tmp/mZT1WMk3ZK.o
a = 5
b = 6
*c = 7
*d = 8
```

PROGRAM 9:

PROGRAM 10:

```
Output
/tmp/mZT1WMk3ZK.o
Enter some text:
hemant
Enter some text:
college
Enter some text:
saveetha
```

PROGRAM 14:

```
Usage: /tmp/dHLH1z8WOt.o <file_name> <destination_dir>
```

PROGRAM 15:

Output

```
/tmp/dHLH1z8WOt.o
1. Create Directory 2. Create File  3. Delete File
4. Search File      5. Display  6. Exit Enter your choice -- 1
Enter name of directory -- HEMANT
Directory created

1. Create Directory 2. Create File  3. Delete File
4. Search File      5. Display  6. Exit Enter your choice -- 2
Enter name of the directory -- HEMANT
Enter name of the file -- hemant
File created

1. Create Directory 2. Create File  3. Delete File
4. Search File      5. Display  6. Exit Enter your choice -- 3
Enter name of the directory -- HEMANT
Enter name of the file -- hemant
File hemant not found
```

PROGRAM 16:

```
The current position of the file pointer is: 21
The current position of the file pointer is: 0
This is C Programming
```

PROGRAM 17:

```
cn-6@cn6-HP-ProDesk-400-G1-SFF:~$ cd desktop
bash: cd: desktop: No such file or directory
cn-6@cn6-HP-ProDesk-400-G1-SFF:~$ cd Desktop
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ cc pr17.c
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ ./a.out
Following is the SAFE Sequence
 P1 -> P3 -> P4 -> P0 -> P2cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$
```

PROGRAM 18:

```
cn-6@cn6-HP-ProDesk-400-G1-SFF:~$ cd desktop
bash: cd: desktop: No such file or directory
cn-6@cn6-HP-ProDesk-400-G1-SFF:~$ cd Desktop
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ cc pr17.c
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ ./a.out
Following is the SAFE Sequence
 P1 -> P3 -> P4 -> P0 -> P2cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ cc pr18.c
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ ./a.out

1.Producer
2.Consumer
3.Exit
Enter your choice:1

Producer produces the item 1
Enter your choice:2

Consumer consumes item 1
Enter your choice:1

Producer produces the item 1
Enter your choice:2

Consumer consumes item 1
Enter your choice:3
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$
```

PROGRAM 21:

```
cn-6@cn6-HP-ProDesk-400-G1-SFF:~$ cd Desktop
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ cc pro21.c
pro21.c:2:24: fatal error: bits/stdc++.h: No such file or directory
compilation terminated.
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ cc pro21.c
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ ./a.out

Process No.     Process Size    Block no.
1                       1                       5
2                       3                       4
3                       5                       5
4                       3                       1
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$
```

PROGRAM 22:

```
cn-6@cn6-HP-ProDesk-400-G1-SFF:~$ cd Desktop
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ cc pro22.c
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ ./a.out

                        Memory Management Scheme - Best Fit
Enter the number of blocks:2
Enter the number of processes:2

Enter the size of the blocks:-
Block no.1:2
Block no.2:3

Enter the size of the processes :-
Process no.1:3
Process no.2:2

Process_no      Process_size    Block_no        Block_size      Fragment
1               3               2               3               0
2               2               1               2               0cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$
```

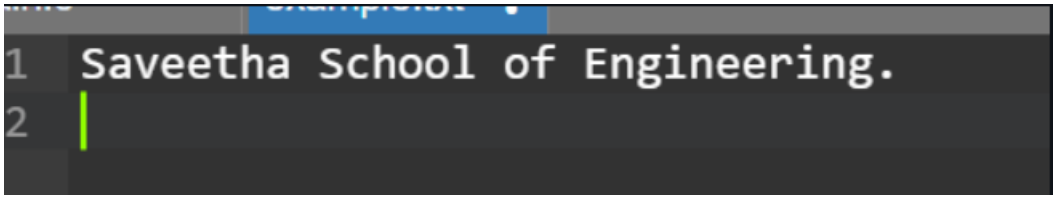
PROGRAM 23:

```
cn-6@cn6-HP-ProDesk-400-G1-SFF:~$ cd Desktop
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ pro23.c
pro23.c: command not found
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ cc pro23.c
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ ./a.out

Process No.     Process Size    Block no.
 1                       212                             2
 2                       417                             5
 3                       112                             2
 4                       426                             Not Allocated
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$
```

PROGRAM 24:

```
cn-6@cn6-HP-ProDesk-400-G1-SFF:~$ cd Desktop
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ pro23.c
pro23.c: command not found
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ cc pro23.c
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ ./a.out

Process No.     Process Size    Block no.
 1                      212                             2
 2                      417                             5
 3                      112                             2
 4                      426                             Not Allocated
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ cc pro24.c
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ ./a.out
fd = 3
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ cc pro24.c
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$ ./a.out
Enter text to write in the file:
sse
sse
cn-6@cn6-HP-ProDesk-400-G1-SFF:~/Desktop$
```

PROGRAM 26:



PROGRAM 27:

```
/tmp/GplnWJKzjE.o
..
lock
mount
systemd
.
secrets
node_modules
pty.node
programiz-oc
swift-5.7.2-RELEASE-ubuntu22.04
swift.tar.gz
apache2
log
shm
user
sendsigs.omit.d
```

PROGRAM 28:

```
Usage: ./a.out <pattern> <file>


...Program finished with exit code 1
Press ENTER to exit console.
```

PROGRAM 29:

```
Philosopher 0 is thinking...
Philosopher 4 is thinking...
Philosopher 3 is thinking...
Philosopher 3 is hungry...
Philosopher 3 is eating...
Philosopher 2 is thinking...
Philosopher 1 is thinking...
Philosopher 0 is hungry...
Philosopher 0 is eating...
Philosopher 3 is thinking...
Philosopher 1 is hungry...
Philosopher 4 is hungry...
Philosopher 3 is hungry...
Philosopher 2 is hungry...
Philosopher 0 is thinking...
Philosopher 4 is eating...
Philosopher 0 is hungry...
Philosopher 4 is thinking...
Philosopher 3 is eating...
```

PROGRAM 30:

```
/tmp/8PwnBHO7FL.o
Hello from main thread!
Thread and Thread2 are not equal
Hello from thread!
Thread has finished.
```

PROGRAM 31:

```
Number of page faults: 9


...Program finished with exit code 0
Press ENTER to exit console.
```

PROGRAM 32:

```
Number of page faults: 9


...Program finished with exit code 0
Press ENTER to exit console.
```

PROGRAM 33:

```
Enter the number of pages: 7
Enter the number of frames: 2
Enter the page reference string: 2 3 4 5 7 8 9
Page replacement using optimal page replacement algorithm:
Page fault at page 2. Replaced page 2
Page fault at page 3. Replaced page 3
Page fault at page 4. Replaced page 4
Page fault at page 5. Replaced page 5
Page fault at page 7. Replaced page 7
Page fault at page 8. Replaced page 8
Page fault at page 9. Replaced page 9
Total page faults: 7


...Program finished with exit code 0
Press ENTER to exit console.
```

PROGRAM 34:

```
Enter the number of files: 10
Enter the files data:
Enter the record data for file 1: 3
Enter the record data for file 2: 4
Enter the record data for file 3: 6
Enter the record data for file 4: 8
Enter the record data for file 5: 9
Enter the record data for file 6: 3
Enter the record data for file 7: 4
Enter the record data for file 8: 5
Enter the record data for file 9: 6
Enter the record data for file 10: 8
Reading the files:
Reading record 1 from file 1: 3
Reading record 1 from file 1: 3
Reading record 2 from file 2: 4
Reading record 1 from file 1: 3
Reading record 2 from file 2: 4
Reading record 3 from file 3: 6
Reading record 1 from file 1: 3
Reading record 2 from file 2: 4
Reading record 3 from file 3: 6
Reading record 4 from file 4: 8
Reading record 1 from file 1: 3
Reading record 2 from file 2: 4
Reading record 3 from file 3: 6
Reading record 4 from file 4: 8
```

PROGRAM 35:

```
Allocated blocks: 0, 1
Freed block: 0
Allocated block: 0
```

PROGRAM 36:

```
File name: hemant
First block: 0
Last block: 65
Block list: 0 -> 4 -> 7 -> 45 -> 65 -> -1
```

PROGRAM 37:

```
Enter the initial head position: 150
Enter the number of disk requests: 3
Enter the disk requests (in request order): 4 5 7
Total distance (in cylinders): 149


...Program finished with exit code 0
Press ENTER to exit console.
```

PROGRAM 38:

```
Enter the disk requests: 7 8 3 5 2
Servicing requests in the following order: 150
Total distance (in cylinders): 0
```

PROGRAM 39:

```
Enter the number of disk requests: 4
Enter the disk requests: 4 3 7 5
Servicing requests in the following order: 20
Total distance (in cylinders): 0
```

PROGRAM 40:

```
Usage: ./a.out <filename>
```