

FORK.c

CODE:

```
GNU nano 8.7
#include <stdio.h>
#include <unistd.h>
#include <sys/types.h>
#include <sys/wait.h>

int main() {
    pid_t pid;

    pid = fork();

    if (pid < 0) {
        printf("Fork failed\n");
    }
    else if (pid == 0) {
        // Child process
        printf("Child Process\n");
        printf("PID : %d\n", getpid());
        printf("PPID : %d\n", getppid());
    }
    else {
        // Parent process
        printf("Parent Process\n");
        printf("PID : %d\n", getpid());
        printf("Child PID : %d\n", pid);
        wait(NULL);
    }
    return 0;
}
```

Output:

```
user@SRUSHTI MSYS ~
$ gcc --version
gcc (GCC) 15.2.0
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warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

user@SRUSHTI MSYS ~
$ nano fork.c

user@SRUSHTI MSYS ~
$ gcc fork.c -o fork

user@SRUSHTI MSYS ~
$ ./fork
Child Process
PID : 1589
PPID : 1588
Parent Process
PID : 1588
Child PID : 1589

user@SRUSHTI MSYS ~
$
```

ORPHAN.c

CODE:

```
GNU nano 8.7
#include <stdio.h>
#include <unistd.h>

int main() {
    pid_t pid = fork();

    if (pid == 0) {
        sleep(5);
        printf("Child Process\n");
        printf("PID : %d\n", getpid());
        printf("PPID : %d\n", getppid());
    }
    else {
        printf("Parent exiting\n");
    }
    return 0;
}
```

Output:

```
M ~
user@SRUSHTI MSYS ~
$ nano orphan.c

user@SRUSHTI MSYS ~
$ gcc orphan.c -o orphan

user@SRUSHTI MSYS ~
$ ./orphan
Parent exiting

user@SRUSHTI MSYS ~
$ Child Process
PID : 1598
PPID : 1
|
```

ZOMBIE.c

CODE:

```
M ~
GNU nano 8.7
#include <stdio.h>
#include <unistd.h>

int main() {
    pid_t pid = fork();

    if (pid == 0) {
        printf("Child exiting\n");
    }
    else {
        sleep(10);
        printf("Parent running\n");
    }
    return 0;
}
```

OUTPUT:

```
M ~
user@SRUSHTI MSYS ~
$ nano zombie.c

user@SRUSHTI MSYS ~
$ gcc zombie.c -o zombie

user@SRUSHTI MSYS ~
$ ./zombie
Child exiting
Parent running

user@SRUSHTI MSYS ~
$ ps -el
  PID   PPID    PGID   WINPID   TTY          UID     STIME COMMAND
  1562     1    1562     9460    ?           197609  15:51:07 /usr/bin/mintty
  1608   1563    1608    11332  pts/1       197609  16:04:49 /usr/bin/ps
  1563   1562    1563    16272  pts/1       197609  15:51:07 /usr/bin/bash

user@SRUSHTI MSYS ~
$ |
```