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1. Create a new process by invoking the appropriate system call. Get the process identifier of the currently running process and its respective parent using system calls and display the same using a C program.

Aim:

To create a new process using system calls, retrieve the process ID (PID) and parent process ID (PPID) of the current process, and display them using a C program.

Algorithm:

1. Start the program.
2. Use the `fork()` system call to create a new process.
    - `fork()` returns:
        - 0 in the child process.
        - The PID of the child in the parent process.
    - If `fork()` fails, it returns -1.
3. In both parent and child processes:
    - Use the `getpid()` system call to get the current process's ID.
    - Use the `getppid()` system call to get the parent process's ID.
4. Print the retrieved PIDs for the parent and child processes.
5. End the program.

Procedure:

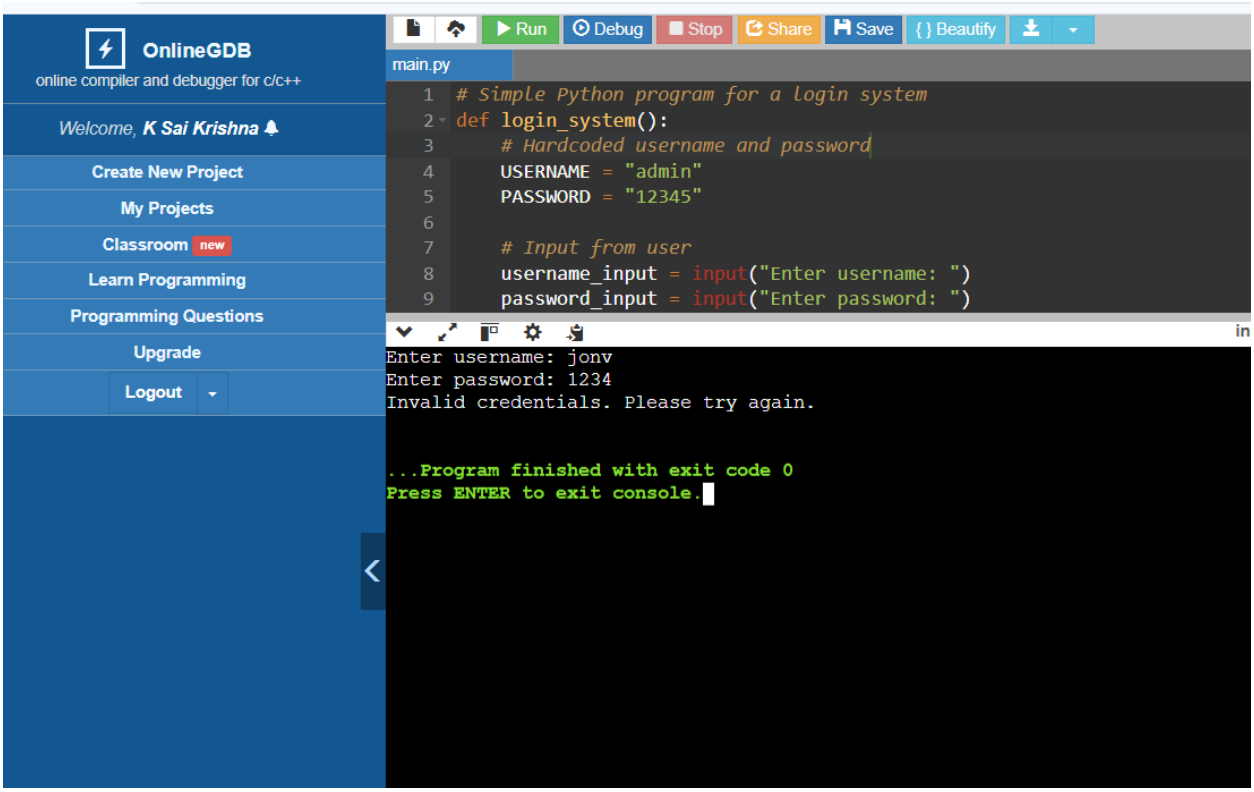
1. Write a C program including the necessary libraries (`stdio.h` and `unistd.h`).
2. Call `fork()` to create a child process.
3. Check the return value of `fork()`:
    - If 0, execute code for the child process.
    - If positive, execute code for the parent process.
4. Use `getpid()` and `getppid()` to obtain and display the PID and PPID for each process.
5. Compile and run the program using `gcc`.

Code:

```
#include <stdio.h>

#include <unistd.h>

int main() {

   pid_t pid = fork();
```

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

Output:



Result:

1. The program successfully creates a new process using fork().
2. It displays the process ID (PID) and parent process ID (PPID) of both the parent and child processes.
3. The output confirms the relationship between the parent and child processes.