```
#include <iostream>
#include <fstream>
#include <cstring>
#include <sys/types.h>
#include <sys/wait.h>
#include <unistd.h>
#include <cstdlib>

using namespace std;

int main() {
    int choice;
    pid_t pid;

    cout << "\n1) Fork";
    cout << "\n2) Wait";
    cout << "\n3) Exec";
    cout << "\n4) cp (Copy file)";
    cout << "\n5) Grep (Count occurrences of a string in a file)";
    cout << "\n6) Exit";
    cout << "\nEnter Choice: ";
    cin >> choice;

    switch (choice) {
    case 1:
        pid = fork();
        if (pid == 0) {
            cout << "\nChild Process ID: " << getpid() << " | Parent ID: " << getppid() << endl;
            exit(0);
        } else {
            cout << "\nParent Process ID: " << getpid() << " | Child ID: " << pid << endl;
        }
        break;

    case 2:
        pid = fork();
        if (pid == 0) {
            cout << "\nChild Process ID: " << getpid() << " | Parent ID: " << getppid() << endl;
            exit(0);
        } else {
            wait(NULL);
            cout << "\nParent Process ID: " << getpid() << " | Waited for child." << endl;
        }
        break;
```

```
case 3:
    pid = fork();
    if (pid == 0) {
        cout << "\nChild executing `ls` command:\n";
        execlp("/bin/ls", "ls", NULL);
        perror("execlp failed");
        exit(1);
    } else {
        wait(NULL);
        cout << "\nParent Process ID: " << getpid() << " | Waited for child to finish `ls`." << endl;
    }
    break;

case 4: {
    ifstream src("src.txt");
    if (!src.is_open()) {
        cout << "Source file 'src.txt' not found.\n";
        break;
    }
    ofstream dest("dest.txt");
    string word;
    while (src >> word) {
        dest << word << endl;
    }
    src.close();
    dest.close();
    cout << "File copied successfully from src.txt to dest.txt\n";
    break;
}

case 5: {
    ifstream src("src.txt");
    if (!src.is_open()) {
        cout << "Source file 'src.txt' not found.\n";
        break;
    }
    string searchStr;
    cout << "Enter the string to search: ";
    cin >> searchStr;
    string word;
    int count = 0;
    while (src >> word) {
        if (word == searchStr)
```

```
                count++;
        }
        src.close();
        cout << "Count = " << count << endl;
        break;
    }

    case 6:
        cout << "Exiting...\n";
        exit(0);

    default:
        cout << "Invalid choice.\n";
    }

    return 0;
}
```

Sample src.txt:

```
hello world this is a test file
hello test file file file
```

Test 1 – Choice: 1 (Fork)

```
Enter Choice: 1
Parent Process ID: 3456 | Child ID: 3457
Child Process ID: 3457 | Parent ID: 3456
```

Test 2 – Choice: 2 (Wait)

```
Enter Choice: 2
Child Process ID: 3458 | Parent ID: 3456
Parent Process ID: 3456 | Waited for child.
```

Test 3 – Choice: 3 (Exec)

```
Enter Choice: 3
Child executing `ls` command:
a.out
main.cpp
src.txt
dest.txt
Parent Process ID: 3456 | Waited for child to finish `ls`.
```

Test 4 – Choice: 4 (Copy)

```
Enter Choice: 4
```

```
File copied successfully from src.txt to dest.txt
```

Test 5 – Choice: 5 (Grep-like count)

```
Enter Choice: 5
Enter the string to search: file
Count = 4
```

Test 6 – Exit

```
Enter Choice: 6
Exiting...
```