Sorting of array

```
#include <stdio.h>
#include <stdlib.h>
int comp(const void* a, const void* b) {
   return (*(int*)a - *(int*)b);
}
int main() {
   int arr[] = { 2 ,6, 1, 5, 3, 4 };
   int n = sizeof(arr) / sizeof(arr[0]);
   qsort(arr, n, sizeof(int), comp);
   for (int i = 0; i < n; i++)
      printf("%d ", arr[i]);
   return 0;
}
```

// Java Program to Swap Two values using third variable

```
import java.util.*;
class GFG {
   static void swapValuesUsingThirdVariable(int m, int n)
   {
      // Swapping the values
      int temp = m;
      m = n;
      n = temp;
      System.out.println("Value of m is " + m
                  + " and Value of n is " + n);
   }
```

```
    public static void main(String[] args)
    {
        int m = 9, n = 5;
        swapValuesUsingThirdVariable(m, n);
    }
}
```

Reverse string program

```
#include <stdio.h>
#include <string.h>
void rev(char* s) {
    int l = 0;
    int r = strlen(s) - 1;
    char t;
    while (l < r) {
        t = s[l];
        s[l] = s[r];
        s[r] = t;
        l++;
        r--;
    }
}

int main() {
    char s[100] = "abcde";
    rev(s);
    printf("%s", s);
    return 0;
```

```
}
```

Depth first search

```
% Edge facts defining the graph
edge(a, b).
edge(a, c).
edge(b, d).
edge(c, e).
edge(c, f).
edge(d, g).
edge(e, g).

% Depth First Search (DFS)
dfs(Start, Goal, Path) :-
    dfs_helper(Start, Goal, [Start], Path).

% Helper predicate for DFS
dfs_helper(Goal, Goal, Path, Path).  % If Goal is reached, return the path.
dfs_helper(Current, Goal, Visited, Path) :-
    edge(Current, Next),           % Move to a connected node.
    \+ member(Next, Visited),      % Ensure Next is not already visited.
    dfs_helper(Next, Goal, [Next|Visited], Path). % Recursive search.

% Example query:
% ?- dfs(a, g, Path).
% Path = [g, d, b, a].
```

Factorial fibonaci

```
% Base case: factorial of 0 is 1
factorial(0, 1).

% Recursive case: factorial of N is N * factorial of (N-1)
factorial(N, Result) :-
    N > 0,
    N1 is N - 1,
    factorial(N1, TempResult),
    Result is N * TempResult.

% Example query:
% ?- factorial(5, Result).
% Result = 120.
```