

Assignment 3

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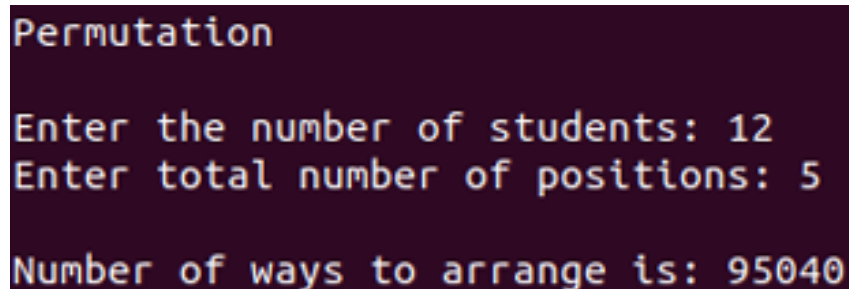
SUB - Mathematical Foundation for GenAI

ASSIGNMENT 3 - Permutations

/*Write a program to implement permutations for a competition with 12 participants. Calculate The number of ways to arrange the top 5 participants if 3 positions are awarded gold, silver, and bronze medals, and the remaining 2 positions receive participation certificates.*/

```
#include <iostream>
using namespace std;
//factorial function (recursion)
int fact(int n) {
    if (n <= 1) return 1; // base case
    return n * fact(n - 1);
}
int main() {
    cout << "Permutation" << endl;
    cout<<"\n";
    int n, p;
    //taking input n and r
    cout << "Enter the number of students: ";
    cin >> n;
    cout << "Enter total number of positions: ";
    cin >> p;

    int n_factorial = fact(n);
    float result = (float) n_factorial / ( fact(n - p));
    cout<<"\n";
    cout << "Number of ways to arrange is: " << result << endl;
    return 0;
}
```



```
Permutation

Enter the number of students: 12
Enter total number of positions: 5

Number of ways to arrange is: 95040
```