

Computer Organization Project 3 – MIPS Assembly 3

Due: 23:55, Apr. 9, 2019

In this project, you are required to write a **recursive program** for binomial coefficient computation. In combinatorics, the binomial coefficient, $\binom{n}{k}$, is the number of distinct k -element subsets of an n -element set. (i.e., the number of ways that k things can be 'chosen' from a set of n things.) Hence, $\binom{n}{k}$ is often read as " n choose k " and is called the choose function of n and k . There are several alternative notations, includes $C(n, k)$ and C_k^n . There are several ways to compute the binomial coefficient. A recursive definition is listed below.

$$C_k^n = C_k^{n-1} + C_{k-1}^{n-1}, \text{ where } C_0^n = C_n^n = 1 \text{ and } 0 \leq k \leq n.$$

Please submit your source code according to the following rules:

- 1- Write down enough comments such that you would receive higher scores.
- 2- The filename is your student ID (e.g., B12345678.asm).

Example:

```
Please input first positive integer n:
10
Please input second positive integer k:
2
The binomial coefficient C(10, 2) = 45
```

```
Please input first positive integer n:
10
Please input second positive integer k:
5
The binomial coefficient C(10, 5) = 252
```