Lab Assignment 1

CS 361 – Principles of Programming Languages I

Fall 2021

Problem

Write a C++ program that, for a given n and k, outputs all the permutations which can be created using k out of n digits. For example, if $n = 4$ and $k = 3$, your program should output: `012 013 021 023 031 032 102 103` … `321` (24 in total). Output all permutations to the console separated by a single space character. Your program should in theory work for each positive n. Due to the output size, however, you should expect an extreme long runtime for any $n > 10$.

Your program should be in a single file *permutations.cpp*. The numbers n and k are given as command line parameters when your program is started. You can determine n and k using the following code.

```
int main(int argc, char* argv[])
{
    int n = atoi(argv[1]);
    int k = atoi(argv[2]);
    /* ... */
    return 0;
}
```

Submission

For your submission, upload the file *permutation.cpp* with your implementation to canvas.

This is an individual assignment. Therefore, a submission is required from each student.

Deadline: Sunday, October 3, 11:59 p.m.