과제 #02

데이터사이언스를 위한 컴퓨팅 1 (2022년도 1학기, M3239.005500)

Due: 2022년 4월 4일(월) 23시 59분

1 Word counts

1.1 wordcount.cpp 파일의 구현

```cpp
#include "wordcount.h"
#include <iostream>
#include <sstream>

#define MAX_WORDS 30

void wordcount(std::string sentences) {
  std::string words[MAX_WORDS];

  // store number of appearance for each word
  unsigned int word_count[MAX_WORDS] = { 0 };

  // store number of total words
  unsigned int total_words = 0;

  // store number of word kinds
  unsigned int total_kinds = 0;

  // to break sentences to words
  std::stringstream ss(sentences);

  // to store individual words
  std::string word;

  // to check whether the word has already appeared
  bool matched;

  unsigned int i;

  while (ss >> word) {
    total_words++;

    matched = false;
    for (i = 0; i < total_kinds; ++i) {
      if (words[i] == word) {
        word_count[i]++;
        matched = true;
```

```
      break;
    }
  }

  if (matched == false) {
    words[total_kinds] = word;
    word_count[i]++;
    total_kinds++;
  }
}

std::cout << "Total number of words: " << total_words << std::endl;

for (i = 0; i < total_kinds; ++i) {
  std::cout << "Word \"" << words[i] << "\" appears ";
  if (word_count[i] > 2)
    std::cout << word_count[i] << " times.";
  else if (word_count[i] == 2)
    std::cout << "twice.";
  else
    std::cout << "once.";
  std::cout << std::endl;
}
}
```

2   Prime number

2.1   main.cpp 파일의 구현

```cpp
#include <cstdlib>
#include <iostream>
#include <math.h>

int main() {
  unsigned int start_num;
  unsigned int end_num;

  std::cout << "Find prime number within a range:\n";
  std::cout << "-------------------------------------\n";
  std::cout << "-> The start of the range: ";
  std::cin >> start_num;
  std::cout << "-> The end of the range: ";
  std::cin >> end_num;

  std::cout << "\nThe prime numbers between " << start_num
            << " and " << end_num << " are:" << std::endl;

  for (unsigned int i = start_num; i <= end_num; ++i) {
    bool is_prime = false;
    for(unsigned int j = 2; j <= sqrt(i); ++j) {
      if (i%j == 0) {
```

```cpp
          is_prime = true;
          break;
        }
      }
      if(is_prime == false && i != 1) {
        std::cout << i << " ";
      }
    }
  }
  std::cout << std::endl;

  return EXIT_SUCCESS;
}
```