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DEPARTMENT OF MASTER OF COMPUTER APPLICATION

Practical 10

Aim:

create a data file with 1000 numbers using random function.

the sorting function will read the data file and sort the numbers, store the sorted numbers in another file.

vertices given by user.

Code:

```
#include <iostream>
#include <fstream>
#include <vector>
#include <cstdlib>
#include <ctime>

void generateRandomNumbers() {
    std::ofstream file("random_numbers.txt");
    if (file.is_open()) {
        srand(time(0)); // Seed for random number generation

        for (int i = 0; i < 1000; ++i) {
            file << rand() % 10000 + 1 << "\n"; // Generating random numbers between 1 and 10000
        }

        file.close();
        std::cout << "Random numbers file generated successfully." << std::endl;
    }
    else {
        std::cerr << "Unable to create random numbers file." << std::endl;
    }
}

void bubbleSort(std::vector<int>& numbers) {
    int n = numbers.size();
    for (int i = 0; i < n - 1; ++i) {
        for (int j = 0; j < n - i - 1; ++j) {
            if (numbers[j] > numbers[j + 1]) {
                std::swap(numbers[j], numbers[j + 1]);
            }
        }
    }
}
```

Practical 10

```
void sortAndStoreNumbers() {
    std::ifstream file("random_numbers.txt");
    if (file.is_open()) {
        std::vector<int> numbers;
        int num;
        while (file >> num) {
            numbers.push_back(num);
        }
        file.close();

        bubbleSort(numbers);

        std::ofstream sortedFile("sorted_numbers.txt");
        if (sortedFile.is_open()) {
            for (int i = 0; i < numbers.size(); ++i) {
                sortedFile << numbers[i] << "\n";
            }
            sortedFile.close();
            std::cout << "Numbers sorted and stored in 'sorted_numbers.txt' file." << std::endl;
        }
        else {
            std::cerr << "Unable to create sorted numbers file." << std::endl;
        }
    }
    else {
        std::cerr << "Unable to open random numbers file." << std::endl;
    }
}

int main() {
    generateRandomNumbers();
    sortAndStoreNumbers();

    return 0;
}
```

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Output: