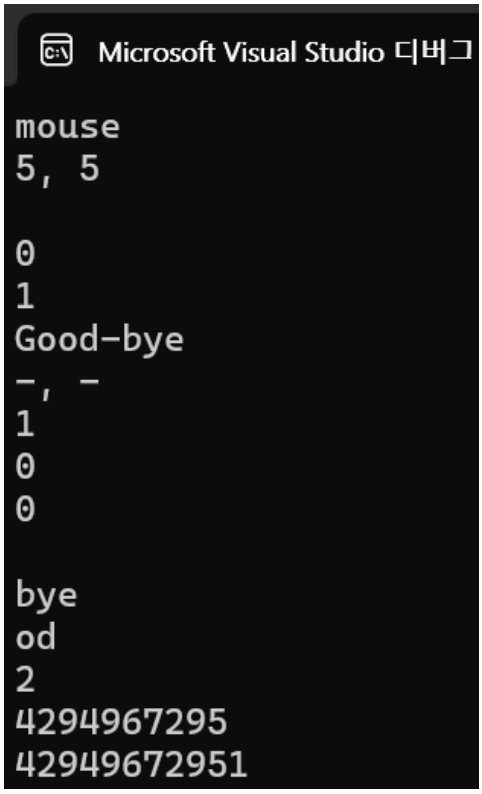
객체지향프로그래밍 LAB #07

<기초문제>_____

1.

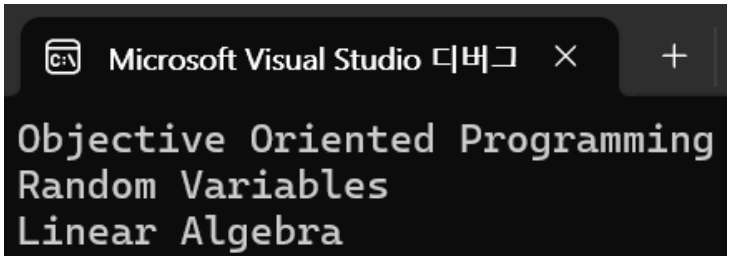
```
#include <iostream>
#include <string> //string객체 사용
#include <fstream> //ifstream ofstream
#include <iomanip> // setw

using namespace std;


int main() {
	string s1 = "mouse";
	cout << s1 << endl;
	cout << s1.length() << ", " << s1.size() << endl << endl; //s1의 length, size 출력
	cout << s1.empty() << endl;
	s1.clear();// s1 = "";
	cout << s1.empty() << endl;
	s1 = "Good";
	s1 = s1 + "-bye";
	// Good-bye (string)
	// 01234567 (index)
	cout << s1 << endl;
	cout << s1[4] << ", " << s1.at(4) << endl; // 두가지 방법으로 index 4 값 출력
	cout << (s1 == "Good-bye") << endl; // s1과 Good-bye 비교 (bool 값 출력)
	cout << (s1 == "good-bye") << endl; // s1과 good-bye 비교 (bool 값 출력)
	cout << (s1 >= "z") << endl << endl; // s1이 "z"보다 크거나 같은지 비교 (bool 값 출력)
	cout << s1.substr(5, 3) << endl; // s1의 index 5부터 3글자 출력
	cout << s1.substr(2, 2) << endl; // s1의 index 2부터 2글자 출력
	cout << s1.find("od") << endl; // od 위치 출력
	cout << s1.find("od", 5) << endl;
	int od_index = s1.find("od");
	cout << s1.find("od", od_index + 2);
	cout << (s1.find("korea") == string::npos) << endl;

	return 0;

}
```

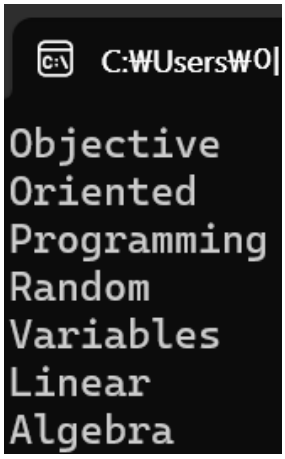


2.

```
#include <iostream>
#include <string> //string객체 사용
#include <fstream> //ifstream ofstream
#include <iomanip> // setw
#include <sstream>

using namespace std;

int main() {
	ofstream fout;   // processor->file 저장
	fout.open("example.txt");		// example.txt 열기

	string s2 = "Objective Oriented Programming";
	fout << s2 << endl;
	fout << "Random Variables" << endl;
	fout << "Linear Algebra" << endl;

	fout.close();			// fout 닫기
```

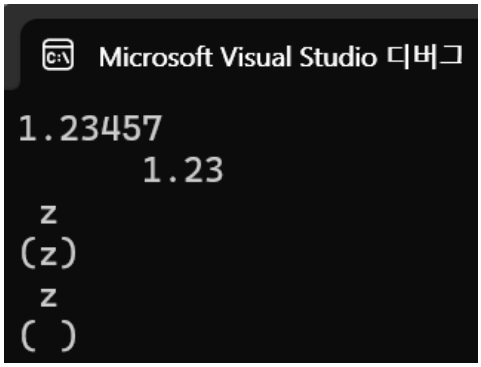
```
    ifstream fin;
    string s1;
    fin.open("example.txt");        // example.txt 열기
    if (!fin) {
        cout << "Error, no such file exists" << endl;
        exit(100);
    }
    while (getline(fin, s1)) { // line by line으로 example.txt에서 읽어와서 출력
        cout << s1 << endl;

    }
    /*
    // 한번에 실행되지 않기 때문에 주석처리 해놓음
     while (1) { // 띄어쓰기 단위로 example.txt에서 읽어와서 출력
         if (getline(fin, s1)) {
             stringstream s3(s1);
             string w;
             while (s3 >> w) {
                 cout << w << endl;
             }
         }
         else
             break;
     }
     */

    fin.close();

}
```





3.

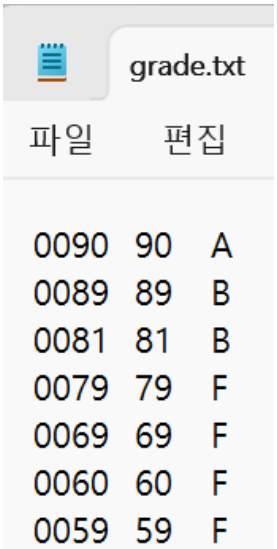
```
#include <iostream>
using namespace std;
int main() {
	double d1 = 1.23456789;

	cout << d1 << endl;

	cout.width(10); // 출력값 길이 10로 지정
	cout.precision(3);  // 주요 자리수 3자리만 출력
	cout << d1 << endl;

	char ch1;
	char ch2;

	// ch1, ch2 : enter " z". ( space + z )
	cin >> ch1;
	cout << "(" << ch1 << ")" << endl;

	cin.ignore(); // enter가 다음 cin으로 들어가지 않도록 해줌
	cin.unsetf(ios::skipws); // space도 입력으로 생각하게 함
	cin >> ch2;
	cout << "(" << ch2 << ")" << endl;


	return 0;
}
```



4.

```
#include <iostream>
#include <fstream> //ifstream ofstream
#include <iomanip>
using namespace std;


bool getStu(ifstream& fin, int& id, int& exam1, int& exam2, int& exam3) {
	fin >> id >> exam1 >> exam2 >> exam3;
	if (!fin)
		return false;
	return true;
}

void calcAvgGrade(int& exam1, int& exam2, int& exam3, int& avg, char& grade) {
	avg = (exam1 + exam2 + exam3) / 3;
	if (avg >= 90)
		grade = 'A';
	else if (avg >= 80)
		grade = 'B';
	else
		grade = 'F';
}

void writeStu(ofstream& fout, int id, int avg, char grade) {
	fout.fill('0');
	fout << setw(4) << id;
	fout.fill(' ');
	fout << setw(4) << avg;
	fout << setw(4) << grade << endl;
```

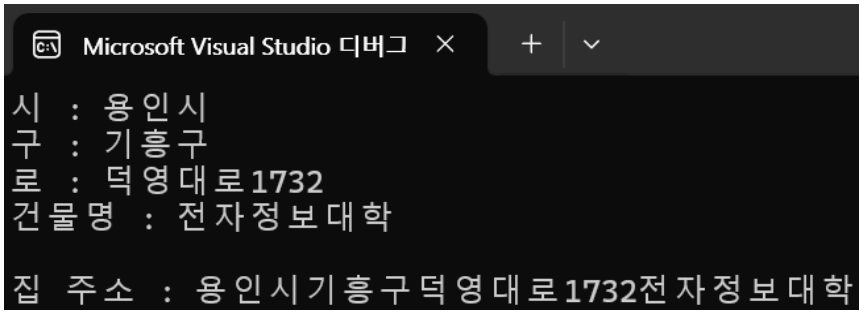
```
}

int main() {
	//반복: 모든 학생을 읽고 저장할 때까지
	 //getStu 함수 = ch7STUFL.DAT에서 파일 읽기: id, exam1, exam2, exam3
	 //calcAvgGrade 함수 = 평균,grade 계산: exam1, exam2, exam3 -> avg, grade
	 //writeStu 함수 = grade.txt 저장: id, avg, grade
	ifstream fin("ch7STUFL.DAT"); // 강의 사이트에서 다운로드 가능
	ofstream fout("grade.txt");
	int id, exam1, exam2, exam3, avg;
	char grade;
	while (getStu(fin, id, exam1, exam2, exam3)) { // getStu함수 사용
		calcAvgGrade(exam1, exam2, exam3, avg, grade);// calcAvgGrade함수 사용
		writeStu(fout, id, avg, grade);// writeStu함수 사용
	}

	fin.close();
	fout.close();
	cout << "end";

	return 0;
}
```



<응용문제>_____

1.

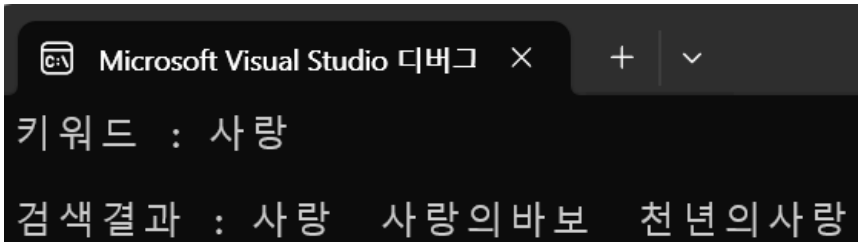
```
#include <iostream>
#include <string>
using namespace std;
int main() {
	string city, area, street, building;
	cout << "시 : ";
	cin >> city;
	cout << "구 : ";
	cin >> area;
	cout << "로 : ";
	cin >> street;
	cout << "건물명 : ";
	cin >> building;
	cout << endl;
	string address = "집 주소 : " + city + area + street + building;
	cout << address;
}
```



2.

```
#include <iostream>
#include <string>
using namespace std;
int main() {
	string k;
```

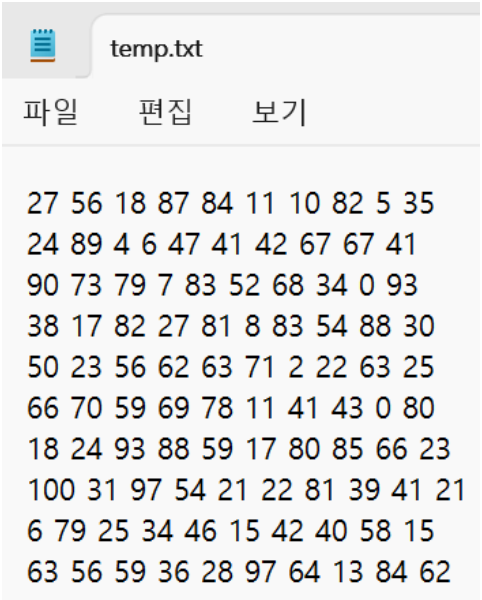
```
	string data = "사랑,프로그래밍,의자,사랑의바보,영통역,천년의사랑,냉장고,객체지향";
	cout << "키워드 : ";
	cin >> k;
	cout << endl;
	string d = "";
	cout << "검색결과 : ";
	for (int i = 0; i < data.length(); i++) {
		if (data[i] != ',') {
			d += data[i];
		}
		else {
			if (d.find("사랑") != string::npos) {
				cout << d << "    ";
			}
			d = "";
		}
	}
	if (d.find("사랑") != string::npos)
		cout << d;
}
```



3.

```
#include <iostream>
#include <fstream>
#include <cstdlib>
#include <ctime>
using namespace std;
int main() {
	ofstream fout("temp.txt");
	srand(time(0));
	int n;
```

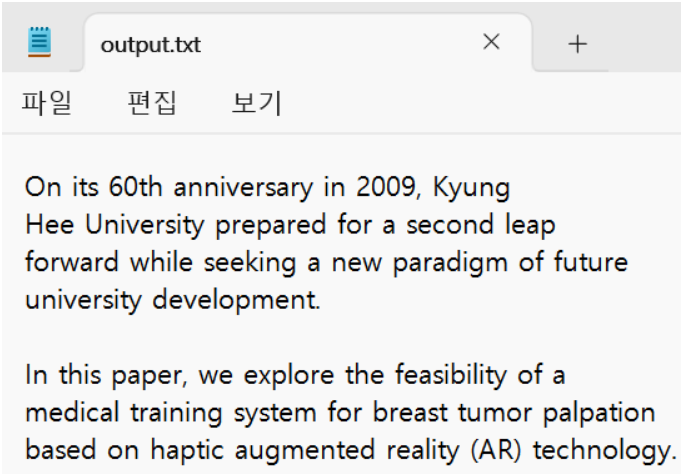
```
	int i = 1;
	int j;
	while (i < 11) {
		j = 1;
		while (j < 10) {
			n = rand() % 101;
			fout << n << ' ';
			j++;
		}
		n = rand() % 101;
		fout << n << endl;
		i++;
	}
	fout.close();
}
```



4.

```
#include <iostream>
#include <string>
#include <fstream>
using namespace std;
int main() {
		ifstream fin1("text1.txt");
		ifstream fin2("text2.txt");
```

```
        ofstream fout("output.txt");
        string n;
        while (getline(fin1, n)) {
                fout << n << endl;
        }
        fout << endl;
        while (getline(fin2, n)) {
                fout << n << endl;
        }
        fin1.close();
        fin2.close();
        fout.close();
}
```



//응용문제 4번의 텍스트 파일들을 하나의 텍스트 파일로 그대로 합치면 줄바꿈이 위의 스크린샷 처럼 됩니다.

두개의 텍스트 파일

On its 60th anniversary in 2009, Kyung Hee University prepared for a second leap forward while seeking a new paradigm of future university development.	In this paper, we explore the feasibility of a medical training system for breast tumor palpation based on haptic augmented reality (AR) technology.

5.

```
#include <iostream>
#include <string>
#include <fstream>
```

```
using namespace std;
int main() {
	ifstream fin("text3.txt");
	ofstream fout("output.txt");
	char n;
	int length;
	cout << "length = ";
	cin >> length;
	int c = 0;
	while (fin.get(n)) {
		if (n == '₩n')
			continue;
		c++;
		fout << n;
		if (c == length) {
			fout << endl;
			c = 0;
		}
	}
	fin.close();
	fout.close();
}
```