

TK1914 C++ Programming

Lab Assignment 8

Two Dimensional Array

- * This scenario is about a multiple-choice test for question 1, 2 and 3.

Suppose that there are nine students and ten questions, and the answers are store in a two-dimensional array. Each row records a student's answer to the questions. For example, the following array stores the students' answers to the test.

	0	1	2	3	4	5	6	7	8	9
Student 0	A	B	A	C	C	D	E	E	A	D
Student 1	D	B	A	B	C	A	E	E	A	D
Student 2	E	D	D	A	C	B	E	E	A	D
Student 3	C	B	A	E	D	C	E	E	A	D
Student 4	A	B	D	C	C	D	E	E	A	D
Student 5	B	B	E	C	C	D	E	E	A	D
Student 6	B	B	A	C	C	D	E	E	A	D
Student 7	E	B	E	C	C	D	E	E	A	D
Student 8	D	B	D	C	C	D	E	E	A	D

The key (correct answer) is stored in a one-dimensional array, as follows:

	0	1	2	3	4	5	6	7	8	9
key	D	B	D	C	C	D	A	E	A	D

- 1.* Write a program that will grade the test, assuming that 1 mark is given to a correct answer and 0.25 marks is subtract for each wrong answer. Your program should read the students' answer into the two-dimensional array, grade the answer and display the marks for each student as below:

Student 0: 6.25
Student 1: 5.00
Student 2: 3.75
Student 3: 2.50
Student 4: 7.50
Student 5: 6.25
Student 6: 6.25
Student 7: 6.25
Student 8: 8.75

- 2.* Write a program that reads the students' answer into the two-dimensional array and find which question that is correctly answered by ALL of the students.
- 3.* Write a program that reads the students' answer into the two-dimensional array and find which question that most of the students answered wrongly.

4. Students are required to spend at least 25 hours weekly for self study on Programming I course. Suppose the weekly hours that students spend on self-study are stored in a two-dimensional array. Each row records a student's seven-day study hours with seven columns. For example, the following array stores the study hours for 8 students.

	Su	M	T	W	T	F	Sa
Student 0	2	4	3	4	5	8	8
Student 1	7	3	4	3	3	4	4
Student 2	3	3	0	3	3	2	2
Student 3	9	3	4	7	3	4	1
Student 4	3	5	4	3	6	3	8
Student 5	3	4	1	2	3	4	4
Student 6	3	7	4	8	3	8	4
Student 7	6	3	5	9	2	7	9

Write a program reads the student's weekly study hours, display total study hours for each student and find students who study less than 25 hours.

- ** This scenario is about a taste test for new soda flavor for question 5 and 6.

Suppose a soda manufacturer held a taste test for four new flavors to see how people liked them. The manufacturer got 10 people to try each new flavor and give it a score 1 to 5, where 1 equals poor and 5 equals excellent. Table below shows the result of the survey. Each row corresponds to a soda and each column in that row corresponds to the persons who taste it.

	0	1	2	3	4	5	6	7	8	9
soda 0	3	4	5	2	1	4	3	2	4	4
soda 1	2	4	3	4	3	3	2	1	2	2
soda 2	3	5	4	5	5	3	2	5	5	5
soda 3	1	1	1	1	3	2	1	3	2	3

- 5.** Write a program that reads the test result, calculates and prints the average responses for each soda and also print which soda flavor got the highest vote.

- 6.** Write a program that reads the test result, calculates the average responses for each respondent.