Homework 11 (Deadline 15:00, June 10, submit your files to TronClass)

Please submit the source code only. The file name should include your student ID number. For example, if your ID number is 406290123, then the file names for problems 1 and 2 should be **406290123_hw11_1.txt** and **406290123_hw11_2.txt**, respectively.

1. Write a general function for matrix multiplication

   In the driver, ask the user to input dimension information (row and column sizes) and all elements for the two matrices A and B to be multiplied.

   One has to declare the sizes of the matrices at the beginning of the main function. Here, I suggest you to use a constant, arraysize. For example,

   const int arraysize=100; // constant declaration

   int a[arraysize][arraysize], b[arraysize][arraysize]; c[arraysize][arraysize] // array declaration

   If any of the dimensions of the input matrices is larger than the declared array sizes, output an error message. If not, proceed to do the following.

   If AB can be defined, call the general function and output the product matrix. If AB cannot be defined, output an error message.

2. Write a function to implement the selection sort algorithm. In the driver, use an integer array of 10 elements to test your function code by showing the array before and after sorting.

3. **Chocolate Distribution Problem**

   Given an array of n integers where each value represents number of chocolates in a packet. Each packet can have variable number of chocolates. There are m students, the task is to distribute chocolate packets such that:

   - Each student gets one packet.

- The difference between the number of chocolates in packet with maximum chocolates and packet with minimum chocolates given to the students is minimum.

Input format

There two lines in the input. The first line has the integers n and m. **n must be no less than m. The next line has n integers** representing the number of chocolates in each packet.

Output format

There is one line of **m integers** representing the number of chocolates each student is given.