Program Design (II)

Homework #4
Due: 2022/5/24 13:00 pm (CST)

NOTE: Please upload your C program to Domjudge before the due date and time.

1. (60%) Use a bitwise operator to write the following function:

   ```
   unsigned short swap_bytes(unsigned short i);
   ```

   `swap_type` should return the number that results from swapping the two bytes in `i` (short integers occupy two bytes on most computers). For example, if `i` has the value `0x1234` (00010010 00110100 in binary), then `swap_bytes` should return `0x3412` (00110100 00010010 in binary). Test your function by writing a program that reads a number in hexadecimal, then writes the number with its bytes swapped. **Hint**: Use the `%hx` conversion to read and write the hex numbers.

   The table below shows example input (underscored contents) and output.

Example
`Enter a hexadecimal number (up to four digits): 1234` `Number with bytes swapped: 3412`
`Enter a hexadecimal number (up to four digits): 1111` `Number with bytes swapped: 1111`
`Enter a hexadecimal number (up to four digits): fa12` `Number with bytes swapped: 12fa`

2. (40%) Please finish the questions in this online survey (https://forms.gle/94QQKy681VrwKCyG6). Please notice that you can only submit the answer once, so please carefully check your answers before submitting them officially.