Problem Set 3 Exercise #10: Soft Toys

Reference: Lecture 7 notes

Learning objective: One-dimensional array

Estimated completion time: 40 minutes

Problem statement:

[CS1010 AY2013/14 Semester 1 Midterm Test, Q10]

A fast food restaurant has recently started a promotional campaign for its value meals. During this campaign, one soft toy is given out to each customer who purchases a value meal. There are altogether 5 types of soft toys and the type of soft toy to be given out on a particular day is decided randomly.

Attracted by this campaign, a soft toy lover, Kitty, visits the restaurant starting from day 0 and thereafter **every other day** to get one soft toy, in the hope of collecting all 5 types of soft toys before the campaign ends.

Write a program **soft_toys.c** that contain a function

```
int which_day(int types[], int size)
```

that decides when Kitty is able to collect all 5 types of soft toys. The parameter **types** is an array of integers between 1 and 5 (both inclusive) indicating the type of soft toy to be given out each day. **size** is the length of the array ($1 \leq$ **size** ≤ 100), which is the total number of days the campaign runs for. This function returns the day on which Kitty is able to collect all 5 types of soft toys, or -1 if she is unable to do so before the campaign ends.

For example, if types = {1, 4, 2, 3}, it means that soft toy 1, 4, 2 and 3 are given out on day 0, 1, 2 and 3 respectively and the campaign ends after day 3. In this case, Kitty is only able to collect toys 1 and 2. Therefore the function call should return -1.

As another example, if types = {1, 1, 2, 2, 3, 3, 4, 4, 5, 5}, Kitty will be able to collect all the 5 types of toys on day 8. Therefore, the function call should return 8.

A tip is given at the end of next page.

Sample run #1:

```
How long will the campaign last: 4
Enter type of toys in each day: 1 4 2 3
Kitty is unable to collect all types of toys
```

Sample run #2:

```
How long will the campaign last: 10
Enter type of toys in each day: 1 1 2 2 3 3 4 4 5 5
Kitty is able to collect all types of toys on day 8
```

Useful tip:

You may want to define 5 **`int`** variables, each to indicate if a particular type of soft toys has been collected. But in the case, why not define an array of 5 **`int`** elements instead?