Practice S05P05: Pie

http://www.comp.nus.edu.sg/~cs1010/4_misc/practice.html

Week of release: Week 5

Objective: Array

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Task statement:

Alice and Bob are sharing a huge pie. It has already been cut into n slices ($2 \leq n \leq 20$) around its centre, and the number of cherries on each slice has been counted. Alice wants to choose a number of <u>consecutive slices</u> as her portion, and the rest given to Bob. However, if the number of cherries in her portion is more than Bob's portion, Bob always swaps his portion with her. Can you compute the maximum number of cherries Alice can get in the end?

Example: n = 8, and the number of cherries on the slices are 6, 8, 17, 19, 2, 16, 3 and 6 in clockwise order.
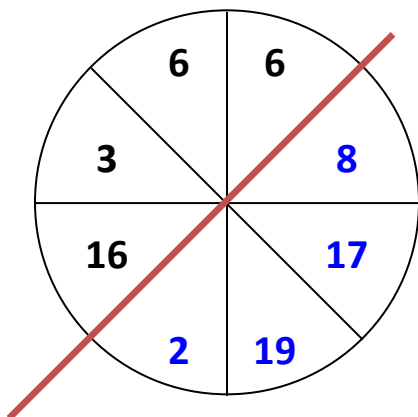
If Alice takes the 4 slices from 8 to 2 (shown in blue in clockwise order), she will get 8 + 17 + 19 + 2 = 46 at first, and Bob will get 16 + 3 + 6 + 6 = 31. Bob will swap with her, and hence Alice will get 31 cherries in the end.
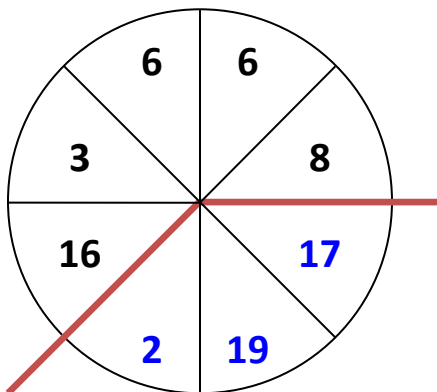
If Alice takes the 3 slices from 17 to 2 (shown in blue in clockwise order), she will get 17 + 19 + 2 = 38, and Bob will get 16 + 3 + 6 + 6 + 8 = 39. Bob will not swap with her. This is optimal solution – Alice will get 38 cherries.

Write a program **pie.c** that reads in the number of slices and the number of cherries on each slice. After that, it computes and prints the maximum number of cherries Alice can get.

Your program should include a **maxCherries()** function.

Sample runs:

```
Enter number of slices: 4
Enter numbers of cherries: 1 4 2 3
The maximum number of cherries Alice can get is 5.

Enter number of slices: 6
Enter numbers of cherries: 4 4 5 6 5 5
The maximum number of cherries Alice can get is 14.

Enter number of slices: 8
Enter numbers of cherries: 6 8 17 19 2 16 3 6
The maximum number of cherries Alice can get is 38.
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