Welcome to the MYOB Coding Exercise!

Please complete the exercise below using .NET C# and send us your solution.
Take as much time as you need. We perform these tests to get a feel for how you approach problems, how you think, and how you design your code.
Please do not share the test on social media (blogs, Facebook etc.).
Thank you and have fun.

Consider the following children's game:

- *n* children stand around a circle.
- Starting with a given child and working clockwise, each child gets a sequential number, which we will refer to as its id.
- Then starting with the first child, they count out from 1 until *k*. The *k*'th child is now out and leaves the circle. The count starts again with the child immediately next to the eliminated one.
- Children are so removed from the circle one by one. The winner is the last child left standing.

Write some code which, when given *n* and *k*, calculates:

- the sequence of children as they are eliminated, and
- the id of the winning child.

Program should use following API to get game parameters (*n* and *k*) and provide game results:

- GET https://7annld7mde.execute-api.ap-southeast-2.amazonaws.com/main/game
  - to get the children count (*n*), elimination count (*k*), and the game id
- POST https://7annld7mde.execute-api.ap-southeast-2.amazonaws.com/main/game/{game id}
  - to provide game results back – the winning child and order of elimination

Example:

- GET https://7annld7mde.execute-api.ap-southeast-2.amazonaws.com/main/game
  Content-Type: application/json

Response:

```
{
  "id": 81381,
  "children_count": 3,
```

```
  "eliminate_each": 1
}
```

The API returned number of children (n) 3 and eliminate every (k) 1.
The game logic should run and identify winning child and order elimination. After that it should provide results back via post API as follows:

- POST https://7annld7mde.execute-api.ap-southeast-2.amazonaws.com/main/game/81381
  Content-Type: application/json

```
Body :
{
  "id": 81381,
  "last_child": 3,
  "order_of_elimination": [1,2]
}
```

Please provide a program to run your solution which posts the winner and sequence of eliminated children. We are looking for a well-designed, testable and maintainable code.

For bonus points:

- Use as little memory as possible and make it run as fast as possible.
- In your comments, discuss the runtime order complexity of your solution e.g., O(n) or O(n^2), etc.
- Comment on resiliency.
- Explain any assumptions or trade-offs you have made.