Developer Candidate Home Exercise

Rectangles

Practicalities

Your take-home coding exercise is designed to take about two to three hours to complete. You are under no obligation to take any specific amount of time to complete the task.

The rules

The code you write should be your own and should be written without direct assistance. However, feel free to use as many reference resources (Stack Overflow, MSDN, Google, textbooks) as you like. The task should be completed in C#.

Please submit your solution as a link to GitHub / BitBucket project. Ideally, it will contain project definitions, e.g. if using Visual Studio, provide a project that can easily be loaded and run. If any specific instructions are required, please include a readme.

The task

The task is to **implement a system to track the position of a collection of rectangles on a grid** that **must** support the following actions:

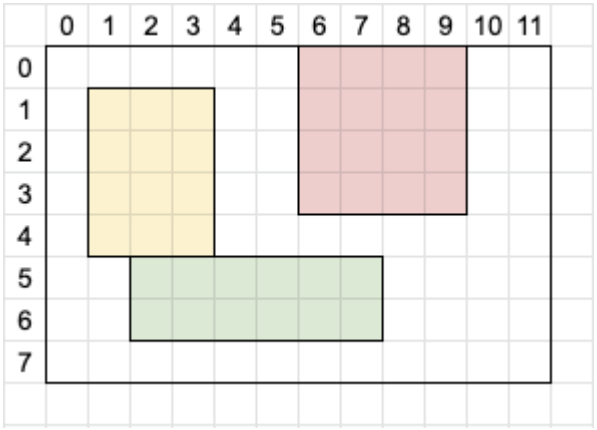
- Create a grid
- Place rectangles on the grid
- Find a rectangle based on a given position
- Remove a rectangle from the grid by specifying any point within the rectangle
- [Optional] Display the grid and rectangles as ASCII art - this might help you with testing!

Constraints

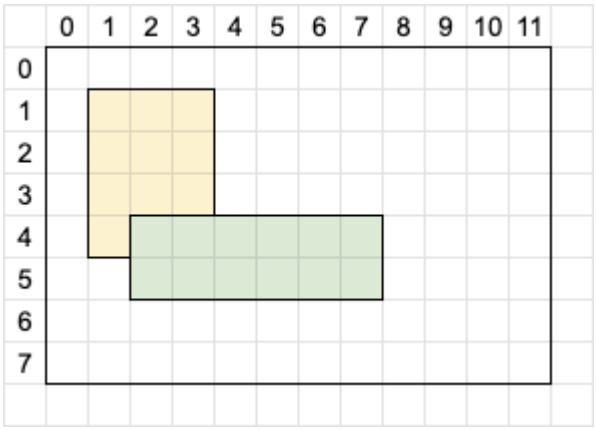
- A grid must have a width and height of no less than 5 and no greater than 25
- Positions on the grid are non-negative integer coordinates starting at 0
- Rectangles must not extend beyond the edge of the grid
- Rectangles must not overlap

Examples

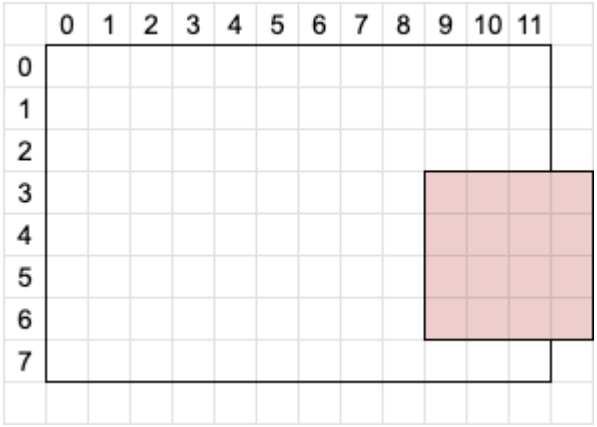
Valid: 3 valid rectangles on a grid



Invalid: Overlapping rectangles



Invalid: Rectangle extending beyond grid



What we are looking for

There is no one “correct” solution, and there is no trick. The main focus is not a fancy algorithm. Instead, we are looking for thoughtfully written, high quality software. As you write your solution, consider things such as:

- Readability
- Maintainability
- Testability
- Extensibility

Be prepared to justify your choices.

There are no bonus points for showing off. Good software development skills are far more important to us than extreme language prowess.

Checklist

When submitting your solution, please review it to ensure:

- Has been submitted via a git repository
- It meets the requirements
- Has no bugs
- Demonstrates you have considered readability, maintainability, testability and extensibility

“Code review” interview

If your solution is accepted, we will invite you to come onsite for a follow-up interview. Part of that will include an interactive session with some developers from Flare. Over the course of the “code review” interview, be prepared to talk the team through your solution, explain your decisions and thought processes, and find and fix bugs. There may also be extension questions where you will be asked to modify your code in a certain way to extend its capabilities.

The panel will be looking for signs that you are suited to be part of a team software development environment. That means that effective communication is important; the aim of this interview is not to answer a series of questions but rather to engage in a dialogue.