Subject

You are going to write a DHTML program for testing visual memory of a user. In this midterm, there are two different projects, and you will select one. Each project has different grading based on their difficulties.

PROJECT #1

Grading: over 80
Difficulty: Easy

Purpose: At the beginning, there will be a startup screen, and when you click start button, there will be 5 rectangles with different colors randomly distributed within a canvas (a div area). None of the rectangles will overlap each other. When you click on a rectangle, it shows up “+1000” text over the clicked rectangle and this text will disappear after one second. The score will be incremented by 1000 and after all rectangles are clicked, the game is over. Reclicking on a rectangle clicked before does not increase score at all. Check out the course web page that shows an animation about how it works.

Grading Criteria:

1. (5Pts) Add a canvas with a background. Choose your background image and canvas size.
2. (5Pts) Add a score bar underneath the canvas.
3. (10Pts) Add a title area (yellow part), write your name, surname and add a start button.
4. (5Pts) After clicking start button, title area disappears.
5. (10Pts) Place 5 rectangles with different colors randomly within canvas.
6. (15Pts) Rectangles will not overlap on each other, and they will not overflow the canvas area.
7. (10Pts) When a rectangle is clicked, show a label “+1000” over the clicked rectangle.
8. (10Pts) The label “+1000” will disappear after one second. Use window.setTimeout() function.
9. (5Pts) Update score.
10. (5Pts) If all rectangles are clicked, display “game over” layer.
PROJECT #2

Grading: over 110
Difficulty: Intermediate

Purpose: This is a game to assess one property of visual memory. This is about remembering the positions of objects. This is also called the spatial visual memory. The game is composed of 5 levels. In each level, test shows a number of rectangles for 3 seconds on the screen, and then it hides all rectangles. The user tries to find the place of all rectangles. If she remembers the rectangle and clicks on it correctly, score is up for +1000 points, but if she misses, the score decreases by 1000 and the nearest rectangle shows up. For level 1, there is only one rectangle, and in level 2, there are 2 rectangles and so on. The aim is to have the highest score which is 15000. Check out the course web page that shows an animation about how it works.

Grading Criteria:

1. (5Pts) Add a canvas with a background. Choose your background image and canvas size.
2. (5Pts) Add a score bar underneath the canvas.
3. (10Pts) Add a title area (yellow part), write your name, surname and add a start button.
4. (5Pts) After clicking start button, title area disappears.
5. (10Pts) Place a number of rectangles with different colors randomly within canvas. The number depends on the level. Level 1 has only one rectangle, but Level 5 has 5 rectangles.
6. (15Pts) Rectangles will not overlap on each other, and they will not overflow the canvas area.
7. (5Pts) After 3 seconds, all rectangles will be hidden.
8. (10Pts) The user clicks on the canvas, if it hits a rectangle, it shows “+1000” on the mouse pointer.
9. (15Pts) If the user misses all the rectangles, it displays “-1000” on the mouse pointer, and shows the nearest rectangle.
10. (10Pts) “+1000” or “-1000” labels become invisible after 1 second.
11. (10Pts) If all rectangles in the Level are visible, it moves to the next level. It starts procedure from 5.
12. (5Pts) If the level is 6, game is over, and display “game over” layer on the canvas.
13. (5Pts) Update scores and level number.

TIPS/TRICKS:

- Place canvas and score bar using absolute position. This enables you to find the mouse positions relative to canvas.
- Do not use border for canvas and score bar.
- Use `window.setTimeout` for timer issues, no need to use `window.setInterval`.
- **One if statement** is enough to find if two rectangles overlap each other or not, just google to find the solution.
- In the demo, the size of rectangles is 30 pixels by 30 pixels.
- If your program works in one browser but not in others, let me know the browser type (IE, Firefox, Chrome). It will not drop your grade.