# 101 Problems Assignment

Using Scratch, create a design of at least six items using two different shapes.

1. Go to [Scratch](https://scratch.mit.edu/) and log in. You can create a new program by selecting **Create**.
2. Change your sprite and background.
3. Create two different functions that draw shapes with size parameters.
4. Create two variables that will keep a count of how many of each shape are in the program. Add the change variables by 1 block to each of the shape functions you created.
5. Create a code block that
   1. starts when the green flag is selected
   2. sets both variables to 0
   3. draws a design of at least 6 shapes by calling your shape functions
      1. use different parameters for size for each of the 6 shapes
6. Save your file to your computer to submit for grading.

Examples of what your program might include:

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| --- | --- |
| Functions | One function code block that uses define triangle size, pen down, set pen color to, set pen size to, repeat 3, move size steps, turn left 120 degrees, pen up, move size steps, move 10 steps, change triangles by 1 and a second function block that contains define rectangle size, pen down, set pen color to, set pen size to 5, repeat 4, move size steps, turn left 90 degrees, pen up, move size steps, move 10 steps, change rectangles by 1 |
| Code Block | Code block that contains when flag clicked, erase all, set rectangles to 0, set triangles to 0, go to x: -200 y: -125, point in direction 90, rectangle 10, triangle 50, triangle 20, rectangle 60, triangle 30, rectangle 70 |
| Screen | picture that shows a count of triangles 3 and rectangles 3 and a drawing of a blue square, followed by two green triangles, followed by a blue square, green triangle and blue square |

**Grading Rubric**

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| --- | --- | --- | --- |
| **Criteria** | **Excellent** | **Good** | **Needs Improvement** |
| **Program Design** | 11–20 points  Work contains **all** required elements:   * includes one sprite that was not part of the starter program * includes a background that was not part of the starter program * includes two different functions that draw shapes with size parameters * includes two variables that keep count of how many of each shape there are in the program | 6–10 points  Work contains **most** of the required elements:   * includes one sprite that was not part of the starter program * includes a background that was not part of the starter program * includes two different functions that draw shapes with size parameters * includes two variables that keep count of how many of each shape there are in the program | 0–5 points  Work contains a **few** of the required elements:   * includes one sprite that was not part of the starter program * includes a background that was not part of the starter program * includes two different functions that draw shapes with size parameters * includes two variables that keep count of how many of each shape there are in the program |
| **Program Content** | 11–20 points  Work contains **all** required elements:   * program contains a code block that starts when the green flag is selected * both variables are set to 0 * draws a design of at least six shapes by calling the shape functions * uses different parameters for size for each of the six shapes | 6–10 points  Work contains **most** of the required elements:   * program contains a code block that starts when the green flag is selected * both variables are set to 0 * draws a design of at least six shapes by calling the shape functions * uses different parameters for size for each of the six shapes | 0–5 points  Work contains a **few** of the required elements:   * program contains a code block that starts when the green flag is selected * both variables are set to 0 * draws a design of at least six shapes by calling the shape functions * uses different parameters for size for each of the six shapes |
| **Program Performance** | 8–10 points  Work contains **all** required elements:   * the program runs correctly * the program contains no syntax or runtime errors * the program produces the expected results | 4–7 points  Work contains **most** of the required elements:   * the program runs correctly * the program contains no syntax or runtime errors * the program produces the expected results | 0–3 points  Work contains a **few** of the required elements:   * the program runs correctly * the program contains no syntax or runtime errors * the program produces the expected results |
| **Total points: 50** |  |  |  |