Karel Project #15

THREE ROOMS

Define your own variables to test the player's skills.

Click on File and save the worksheet in the folder course-karel-projects under the new name, three-rooms.

Click on ⬤ Designer and select ✐ to remove the example maze.

Goal: Use Predefined Variables

To create a maze with predefined variables, you will:

1. Create the 3-rooms template.
2. Place Objects in your maze.
3. Define Variables for each room.
4. Test your maze.

Predefined Variables

In this project you will use predefined variables to make your maze more challenging. In the Karel course, you can use variables to solve many tricky problems.

```
1 #This variable is a number with a value of two
2 new_variable = 2
```

This variable might be used to count the quantity of Objects in a maze. It can also be used to keep track of Karel's movement or to perform mathematical computations. You will be able to challenge the player in interesting ways when you create a predefined variable as part of your Karel maze,

Before you define your variable you need to build a simple maze.

Step 1: Create a maze with the 3-rooms template

The 3-rooms template will be useful for creating challenges that use variables. The template provides 3 separate rooms for Karel to evaluate. Each of these rooms will correspond to a predefined variable that you will create.
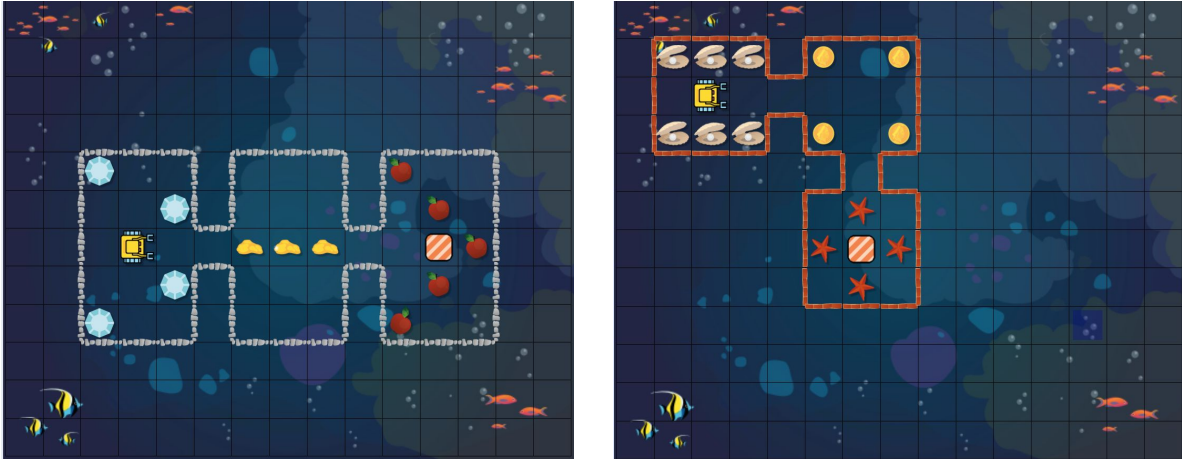
Place some Walls so that you create 3 separate rooms. The rooms can be as large or as small as you like. This will be your 3-rooms template.

Save your template as a separate file for later use.

Step 2: Place Objects in Your Maze

To make the rooms unique, place Objects in each of the rooms. Every room should have its own unique Object.

In the next step, you will define a different variable for each of the 3 rooms. Remember the names of the Objects you used as well as the quantity of each Object.

Step 3: Define Variables for Each Room

Select Edit game from the top of the window. Then select the Variables tab.
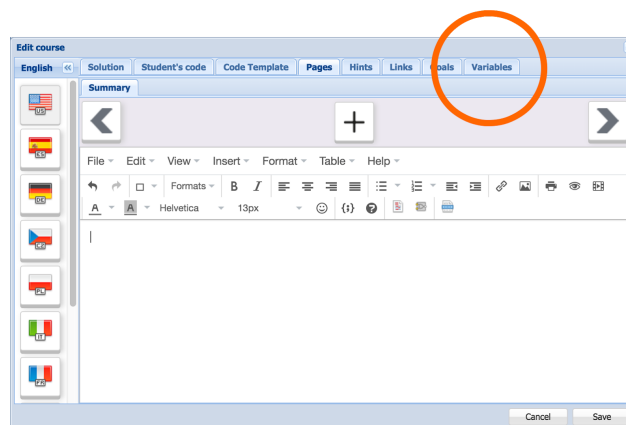
Select the ➕ Add Variable button. Your new variable will appear. Take a look at the options available for your new variable.

Name	Type	Value	
		Maze 1	
variable name	String	expected value	✖

The variable for the room below will be a Number named pearls with an expected value of 6.

Every time you add a new variable, you need to define:

- The variable's name,
- The type of the variable,
- And the expected value of the variable.

For example, your first variable will need:

- The name will be the name of the Objects you placed in the first room,
- The type will be Number,
- And the expected value will be the quantity of that Object in the first room.

When you are done, you should have 3 variables.
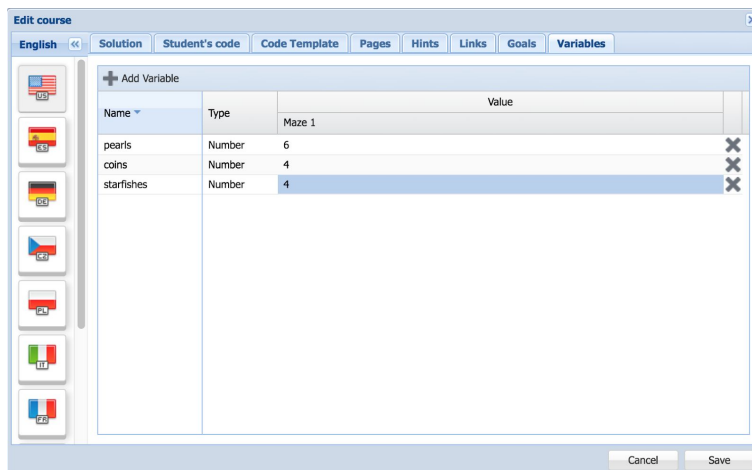
Step 4: Test your maze

It is time to solve your maze. You will need to set the Mode to Programming in Goals before attempting your maze. Then create a solution for your maze that defines 3 variables.

Use Functions when solving your maze. You can use the value that a function returns to evaluate each room as you move through the maze.

Project Checklist

This project will be finished when:

1. You have created the 3-rooms template.
2. You placed Objects in your maze.
3. You defined Variables for each room.
4. You tested your maze.