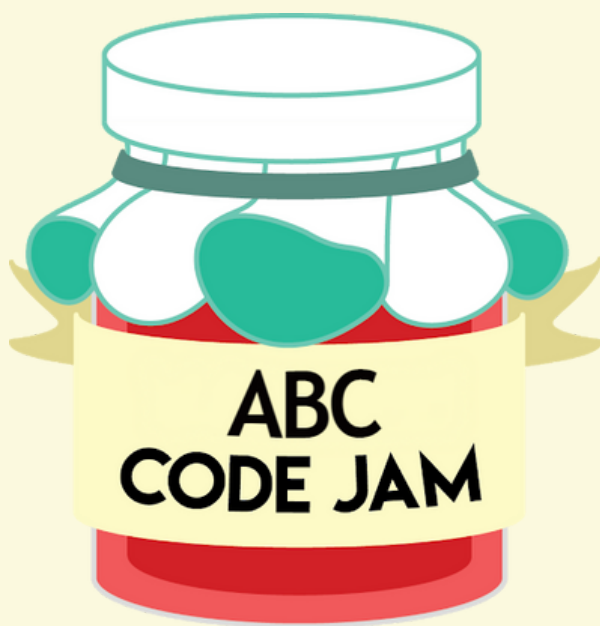# ABC CODE JAM
## Presents

# SAMPLE PROJECT CATALOG

ABC CODE JAM

# Welcome Code Jam Hacker!

This is your sample project catalog, which you can use to help develop your projects and create amazing things! Don't know what to make? Check out these different IDEs (Integrated development environments) and the sample projects you can create with them. Click the underlined text to view links. Happy Coding!
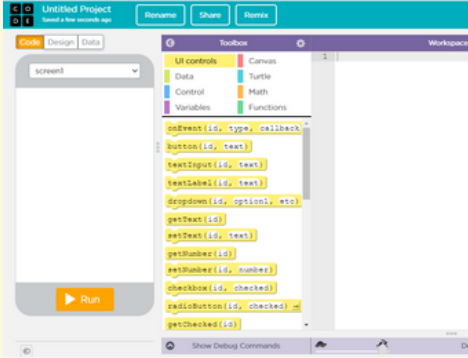
**Remember: you may not use these projects as your actual projects for the competition!**
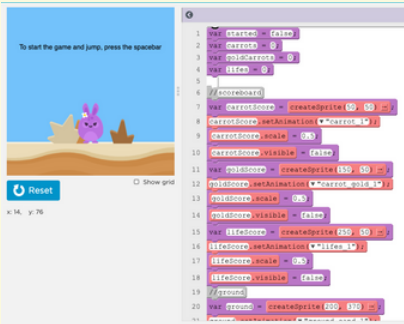
# Code.org (Game Lab)

Code.org offers many great ways to create your project. In Game Lab, you can make simple animations and games with objects and characters that interact with each other.

## No background required, but skills applicable include:

- Language: JavaScript or Block coding
- Unit 3 of CS Discoveries online course
- Variables, loops, conditions

## Sample Project: Bunny Run



Check out a simple endless runner game built with Game Lab! Play the game itself, then take a look at the code and see how it was built!
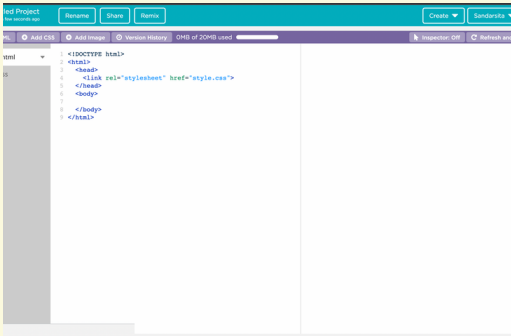
Click Me to View Project File!

## Key Points of this Program:

This project features **variables** to keep track of the bunny's score that is updated whenever a **conditional** is met. The game uses **sprite animations** that updates through a continuous **loop**.

# Code.org (Web Lab)

## Beginner Level



Code.org offers many great ways to create your project. Web Lab is a programming environment where you can make simple web pages in seconds. You can create a personal website, a website for a school club, and much more

## No background required, but skills applicable include:

- Language: HTML and CSS (Javascript for functionality)
- Unit 2: Web Development

## Sample Project: The Cafe Baguette



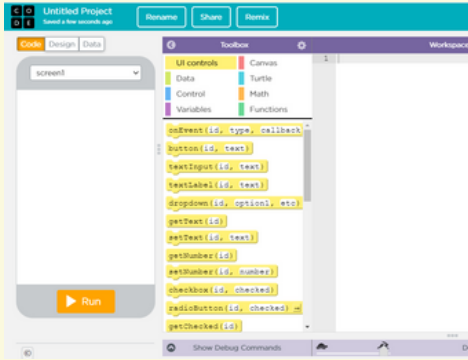https://codeprojects.org/zEgudD1k3SL6JAi1oq4lwmFqL-gXtKL2aWHiEErIdzU

If you want a coffee or a pastry, check out this website made for a local cafe! It includes a menu, coupons, and information about the executive chef! You can look into the code of the website by double clicking and pressing *inspect*, and then locate the tab which says sources to view the CSS, HTML, and Javascript files.

## Key Points of this Program:

This project features the use of HTML and CSS elements, as well as Javascript to bring aspects of the website alive! The website utilizes buttons, images, headers, a color palette, and links to create an aesthetically pleasing website!
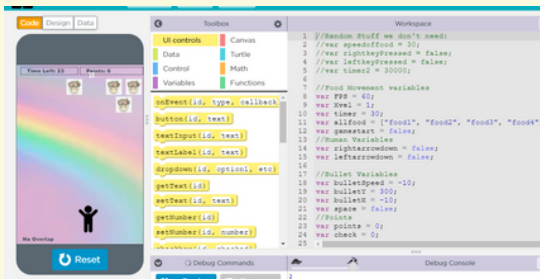
# Code.org (App Lab)

Code.org offers many great ways to create your project. In App Lab, you can create your own app and use block-coding to develop the functionality of your app. It is easy and and plenty of fun!

## Background:

- Language: JavaScript or Block coding
- Seen in AP Computer Principles in CHS and WHS
- Can create your own interactive game app

## Sample Project: Food Extravaganza



Click Me to View Project File!

In this sample project, you will see the game, Food Extravaganza. Click the run button to start the project, and test out the game by using the arrow keys to move the person and the space bar to shoot!

## Key Points of this Program:

This project features smooth movement and collision formulas in order to calculate the score and to get the person to move. The person is using **smooth movement** to move across the bottom part of the screen. In addition, it is the same as the little forks that shoot out of the person. To calculate points, it uses **collision formula** to check if the fork touches the food characters.
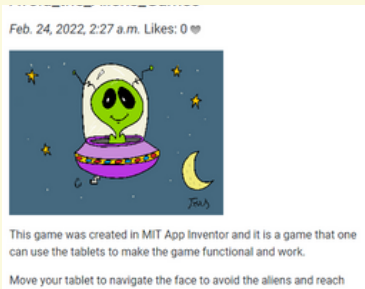
# MIT App Inventor

Want to make a fun app? MIT App Inventor may be the IDE for you! A little more advanced than Code.org, you can create fun games and apps with different functionalities. Plus, your creations can link up with the android app to see them in action.

## Background:

- Language: Block Coding similar to java
- Seen in Computer Science Essentials Class at CHS
- Can create your own interactive tablet app!

## Sample Project: Avoid the Aliens



Feb. 24, 2022, 2:27 a.m. Likes: 0 ♥

This game was created in MIT App Inventor and it is a game that one can use the tablets to make the game functional and work.

Move your tablet to navigate the face to avoid the aliens and reach

In this sample project, you will see the game, Avoid the Aliens. Load the app on the MIT App Inventor Android app to see how the game works. Tilt your tablet to navigate the character across the screen, and make sure to avoid the aliens!
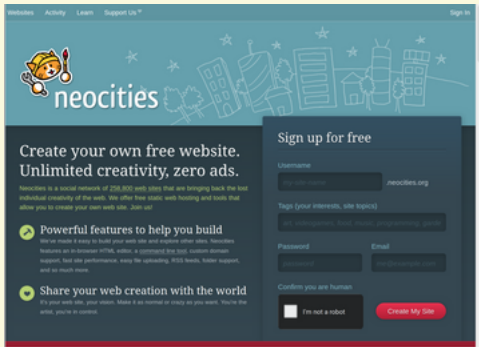
Click Me to View Project File!

## Key Points of this Program:

This project features the use of an **accelerometer** which is used to move the character moves horizontally across. In addition, we use the **timer** to automatically move the aliens across the screen using the **global variables** instantiated in the program.

# Neocities

**Intermediate Level**



Love to make your own website? Then, Neocities is the perfect place to host it and also put your HTML and CSS skills to the test. Use your creativity and make a website of your own design.

## Background:

- Language: HTML, CSS, and javascript
- Seen in Computer Science Essentials Class at CHS
- Can create your own website about any topic you like!

## Sample Project: The In Cafe



**This is the same website as the Code.org Web lab, but just hosted by Neocities.** You can look into the code of the website by double clicking and pressing *inspect*, and then locate the tab which says sources to view the CSS, HTML, and Javascript files.

[Click Me to View Project File!](#)

## Key Points of this Program:

To bring sections of the website to life, this project uses HTML and CSS elements, as well as Javascript! To build an aesthetically beautiful website, the website makes use of buttons, graphics, headers, a color palette, and links created by CSS.
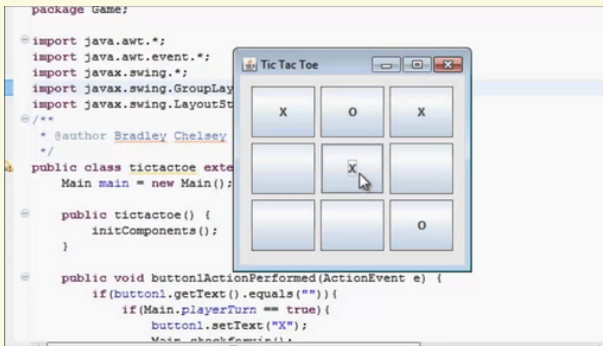
# BlueJ

BlueJ is an integrated development environment that uses the Java Programming language and has great graphic and text editing and a built-in editor to easily construct classes and objects.

## Background:

- Language: Java
- Seen in AP Computer Science A in CHS
- Can create various programs, games, management systems, etc.

## Sample Project: Tic Tac Toe Game GUI



Click Me to View Project File!

In this sample project, you will see the game, Tic Tac Toe. Copy the code onto your Java project, click the compile button, and run the main method to run the program!

Click Me to Watch the Tutorial part 1!     Click Me to Watch the Tutorial part 3!
Click Me to Watch the Tutorial part 2!     Click Me to Watch the Tutorial part 4!
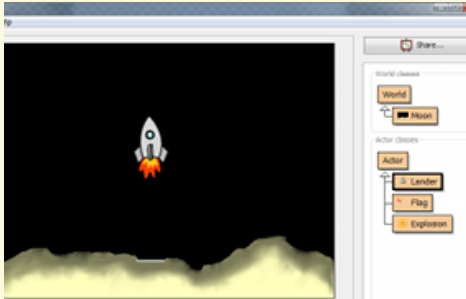                                           Click Me to Watch the Tutorial part 5!

## Key Points of this Program:

This project works by creating a new project that allows users to create different classes and children classes of the original class. It also allows users to create an **interface** to play the tic tac toe game and sets up a public static void main method which the user runs to make the program run. Users can click on the squares to place their "x" or "o" through creating **buttons**.
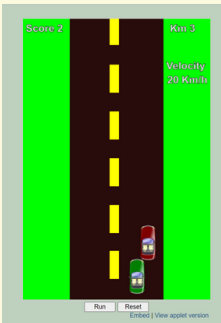
# Greenfoot

**Advanced Level**



**Greenfoot** is a software tool designed to let you get experience with object-oriented programming. It supports development of graphical applications in the Java™ Programming Language.

## Background:

- Language: JavaScript
- Seen in AP Computer A in CHS
- Two-dimensional graphical applications, such as simulations and interactive games.



## Sample Project: Avoid the Traffic



In this sample project, you will see the game, Avoid the Traffic. Click the run button to start the game and test out the game by using the arrow keys to move around the cars and switch roads.

Basic Tutorial Part 1
Basic Tutorial Part 2          Greenfoot Official Youtube

## Key Points of this Program:

You should find that new cars keep appearing at the top of your road, and the **method** you programmed to make them move down the screen make it look as though the red car is driving along the road towards the on-coming traffic. The vehicles should disappear when they reach the bottom of the screen. You should be able to **generate random numbers**, **add objects at runtime**, construct **if statements**, and **subclasses** to curate this project.

# Happy Coding Code Jam Hacker!

There are endless possibilities of creations you can make with code and using computer science concepts. You are not limited to make projects based solely what is in this booklet.
Explore, learn as you go, and have fun!