

EMS Coding Club

9/20/2023

In this session

- Goals of the club
- What will we learn?
- How will each session be?
- How to join?

Goals

Inspire

- Expose students to the wide world of computer science
- Explore their level of interest

Learn

- How to think like a programmer?
- Core Computer Science Concepts
- Hands-on coding

Build

- Work on projects that are interesting
- Develop algorithms for a class of problems

Participate

- Compete in coding events

What will we learn

Core Concepts

- Example Topics:
 - Problem Decomposition
 - Pattern Recognition
 - Abstraction
 - Algorithms
 - Order of Complexity
 - Testing
 - Agile Methodology
 - How to use modern tools?

Basic Python

- Example Topics:
 - Language syntax
 - Comments
 - Variables
 - Data Types
 - If...Else statements
 - For Loops
 - While Loops
 - Lists
 - Tuples
 - Sets
 - Dictionaries

Advanced Python

- Example Topics:
 - Functions
 - Arrays
 - Classes/Objects
 - Inheritance
 - Iterators
 - Modules
 - File Handling
 - Pygame
 - Numpy
 - Intro to machine learning

How will each session be?

- Wed 5:00pm to 6:00pm (starts Oct 4th)
- Virtual (Teams)
- Use your own device (not school computer)
- Project based learning
 - 10 min Project background or Algorithm Problem
 - 35 min Coding or Algorithm Design
 - 10 min Sharing
 - 5 min Reflection
- Example projects:
 - Create your own rock, paper, scissor game (Introduces variables and conditional statements)
 - Secret Messages (Encryption program that introduces iteration (looping) over text string)
 - Fetching the weather (HTTP requests, RESTful APIs)
 - Password generator and many mor

Competitions

- [American Computer Science League \(acsl.org\)](https://acsl.org)
- Junior / Intermediate Division - Each contest consists of an online 30-minute, 5-question short answer test and an online programming problem to solve in 72 hours.
- Each Team can have max of 12 members
- There are four contests during the regular season.
 - Contest #1: available Nov. 1, 2023; closes Sunday January 14, 2024 @ 11:59pm EST
 - Contest #2: available Jan. 2, 2024; closes Sunday March 3, 2024 @ 11:59pm EST
 - Contest #3: available Feb. 5, 2024; closes Sunday April 7, 2024 @ 11:59pm EDT
 - Contest #4: available March 11, 2024; closes Sunday May 12, 2024 @ 11:59pm EDT

Competitions

- [Home - Bebras® Computing Challenge \(bebraschallenge.org\)](https://bebraschallenge.org)
- The next USA Bebras Challenge takes place from 6 - 19 November 2023
- The Bebras challenge is designed to help students explore their talents and passion for informatics and computational thinking with engaging challenges.
- Benjamins (age 10-12) / Cadets (age 12-14) - Each group will get 3 sets of 5 tasks. The 3 sets each have a level of difficulty: easy, medium or hard. They will have 45 minutes to complete the tasks.

Other Competitions

- Congressional App Challenge
 - Students create and submit their original apps for a chance to win
- Hackathons
 - Code day (<https://www.codeday.org/>)

Roles

- Thanks to all our volunteers!
- Chair
 - Kaushik Pushpavanam Kaushik@evergreenptsa.org
 - Ensure Club success.
- Instructor
 - Emily He emily@evergreenptsa.org
 - Leads every class and sets curriculum and lesson plans.
- Coaches' jobs:
 - Teach a programming concept
 - Lead a project
 - Guide students to participate in competitions
- Other Volunteer jobs:
 - Help kids with their technical issues
 - Help with checking kids work
 - Administrative work (register teams for competitions etc.)
 - Others as needed

How to join?

- Just click <https://evergreenptsa.org/Packet/CodingClubReg>
- Please note that you must login to Evergreen PTSA website for registration

Questions?