Coding with ChatGPT: activities

2025 SDSU Data Science Camp   for high schoolers   By Dr. Xijin Ge

Activity 1. Get Ready

Go to ChatGPT.com. Login is recommended.

Activity 2. Learn HTML, CSS, JavaScript

Survey: Know HTML, CSS, JavaScript?
Prerequisite: Use a text editor such as NotePad, NotePad++
Learning outcome: Progressively improve code.

	Prompts	Note	File names
1	Act as a computer science professor. I am learning HTML. Give me the Hello World example.	Copy the code. Paste to a Text Editor. Save. Click on it to open in a browser.	**Hello v1.html**
2	Add a short paragraph about the history of HTML.		**Hello v2.html**
3	Show me how to add a links.		**Hello v2 links.html**
4	Help me understand CSS by changing the font and background color.		**Hello v3 CSS.html**
5	Show me how JavaScript works by adding a button to this page, which shows a message when clicked.		**Hello v3 CSS JS.html**

Note: it is *essential* to name files and folders properly.

Activity 3. To-do list web page

	Prompts	Note	File name
1	Write code for a to-do list app that runs in a web browser.	**Resubmit** a few times. See the difference in response. *Choose the best one to proceed.*	**Todo v1.html**
2	Write code for a to-do list that runs in a web browser. Tasks can be entered into a box. Once I hit enter, the task appears below the box, along with a checkbox.	**Revise** the first prompt. Do NOT continue.	**Todo v2.html**
3	Once a task is checked, change the font background to green.	Follow up prompt.	Todo v3 color.html
4	When a task is checked, show an encouraging message like "Great job!" in large size that disappears on its own.	Follow up prompt.	Todo v4 message.html
5	Add today's date and current time.	Follow up prompt.	Todo v5 time.html
6	Customize by yourself.		

Activity 4. Shooter game.

Learning outcomes:

- Resubmit prompts to get different code.
- Revise previous prompts.
- Refine iteratively

	Prompts	
1	Write code for a simple shooting game that runs in the browser. Put everything in one file.	Resubmit a few times. See the difference in response.
2	Write code for a shooting game that run in the browser. Put everything in one file. This game will feature a player at the bottom of a 400x400 playing area. The player can be moved left or right using the arrow keys. When the space key is pressed the player shoots a projectile. Targets appear randomly on top of the screen and move down. Targets disappear after being hit by projectiles.	Revise the first prompt.

Resubmit to get a better working version. |
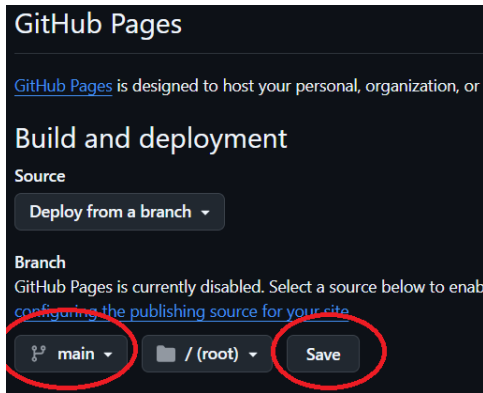| 3 | Change background color to dark grey. | |
4	Instead of using the keyboard, the player moves horizontally using the mouse and shoots when I left click.	
5	Add a score counter.	
6	If the player is hit by the targets, the game is over. Users can restart.	

Activity 5. Snake game

Learning outcomes:

- When stuck, start a fresh conversation. Copy the existing code over.
  <mark>Change the background to red in this app. My code is: XXXXXXX (paste existing code).</mark>
- Try other LLMs such as Google Gemini

	Prompts	Note
1	Write code for the snake game as one file that runs in a browser.	Resubmit a few times. See the difference in response.
2	The snake is just one square. Make it longer.	Revise the first prompt. Resubmit to get a better working version.
3	The snake went out of the boundary.	
4	Can we add a score reporting on the food count?	
5	Change the background to dark grey in this app. My code is: XXXXXX	Start a new chat!!!!! Include existing code in prompt.

Activity 6: Publish apps on GitHub.

- Learning outcomes: Publishing games or websites on GitHub.

1. Create an account on GitHub.
2. Create a repository for the game or coding project you are working on. For example, I have a repository called datamap. Source code is at https://github.com/gexijin/datamap/
3. Upload code and other files needed.
4. Publish the game. Go the homepage of this repository, and then click on **Pages** under **Settings**. Switch to the Main branches and click on Save.
5. Refresh this page after a few minutes. Your app is live at an URL like this https://gexijin.github.io/datamap/ Note the difference in the domain.

Create AI chatbots using Gemini

Go to Gemini.Google.com

	Prompt	
Starship bridge simulator	Make a working text adventure starship bridge simulator. there should be different stations to control and each should use AI in different ways to advance an overall story.	
AI tutor	Write code for an AI tutor. The users give a subject. The app uses AI to explain it and give a few short answer quizzes. The app provides feedback.	

Other games that other people tried

Game Title	Game Type	Prompt Example
Rock Paper Scissors	Logic game (2D buttons)	Write a Rock Paper Scissors game using HTML, CSS, and JavaScript.
Guess the Number	Text-based puzzle	Create a number guessing game in JavaScript where the computer thinks of a number between 1 and 100.
Tic Tac Toe	2D board game	Generate the code for a Tic Tac Toe game in HTML/JS that two players can play by clicking cells.
Hangman	Text-based puzzle	Build a Hangman game in HTML, CSS, and JavaScript. Include a list of words and display blanks for letters.
Quiz Game	Trivia/quiz	I want to create a simple quiz game in HTML/JS with 5 multiple-choice questions about [topic].
Pong	2D arcade game	Create a simple Pong game using HTML5 canvas and JavaScript.
Snake	2D arcade game	Generate a simple Snake game in JavaScript using a 2D grid.
Breakout (Brick Breaker)	2D arcade game	Create a Breakout-style game with HTML canvas and JavaScript.
Flappy Bird	Side-scrolling action	Build a Flappy Bird game in JavaScript with canvas, gravity, and pipes.
Space Invaders	2D arcade shooter	Create a simple Space Invaders game using HTML5 canvas and JavaScript.
Memory Card Match	Card matching puzzle	Create a memory card matching game in HTML/CSS/JavaScript with 8 pairs of cards.
Text Adventure	Text-based adventure	Make a browser-based choose-your-own-adventure game using JavaScript.
Whack-a-Mole	Clicker/reflex game	Write code for a Whack-a-Mole game in JavaScript with scoring.
Typing Speed Test	Skill game	Build a typing speed test in JavaScript with timer and error count.
Maze Runner	Maze puzzle	Create a maze game in HTML and JavaScript with keyboard controls.