

Javascript Assessment (3 hour 30 minutes)

Learning Objectives	<ul style="list-style-type: none">• Build the Find Your Hat game from scratch.• Explain the steps behind building a JavaScript Application.
Assessment	<ul style="list-style-type: none">• Project: Complete the assessment criteria in the project rubric.

Welcome to the course assessment for the JS module!

In this session, you will complete the Find Your Hat project.

By the end of this session, you will be able to:

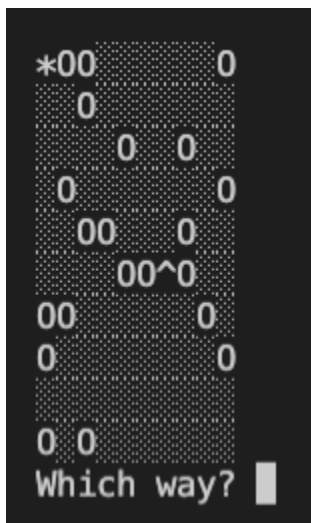
- Apply Javascript to build a web application (Find Your Hat game) from scratch.

1 Requirements

In the Javascript assessment, you need the following the following requirements

1. Download and Install NodeJS here: <https://nodejs.org/en/download/>
2. Run **npm install prompt-sync** in the terminal / command prompt
3. Run **npm install clear-screen** in the terminal / command prompt

Find your hat game application



Requirements:

- Create a 10 X 10 Field
- The character * can be always at the default of position (0,0) when the user starts the game
- The controls for the character are:
 - Up = u key
 - Down = d key
 - Left = l key
 - Right = r key
- If a user entered an invalid key (e.g. p or t), output "Enter (u, d, l or r.) and allow the user to enter again
- The number of holes generated should be lesser than the fields generated
- When the character drops into a hole, output "Sorry, you fell down a hole!" and the game ends
- When the character hits the boundaries, output "Out of bounds - Game End!" and the game ends
- When the character gets the hat, output "Congrats, you found your hat!" and the game ends

3 Useful Link:

- [Getting User Input in Node.js](#)
- [Create Block Elements](#)
- [Class Static Method](#)
- [Javascript fill Method](#)
- [Javascript Map Method](#)
- [Ways to populate Array in Javascript](#)
- [Nested For Loop](#)
- [How to create 2D array](#)

4 Code Sample (Kick-Starter)

Task 1: Create global variables and import prompt input from package

```
const prompt = require('prompt-sync')({sigint: true});
const clear = require('clear-screen');

const hat = '^';
const hole = 'O';
const fieldCharacter = '█';
const pathCharacter = '*';
const row = 10;
const col = 10;
```

Task 2: Create Field Class with constructor for the game

```
class Field {

  field = [];

  constructor() {
    //this.field = field;
    this.locationX = 0;
    this.locationY = 0;

    for (let a = 0; a < col; a++) {
      this.field[a] = [];
    }

    this.generateField();
  }
}
```

Task 3: Create generateField Method in the Field Class to generate the rows and columns with fields.

```

generateField() {
  for (let y = 0; y < row; y++) {
    for (let x = 0; x < col; x++) {
      const prob = Math.random();
      this.field[y][x] = fieldCharacter;
    }
  }

  // Set the "hat" location

  //set character position as [0][0]
}

```

Task 4: Create runGame, print, askQuestion Methods for the game

```

runGame() {
  //Implement your codes
  this.print();
  this.askQuestion();
}

print() {
  clear();
  const displayString = this.field.map(row => {
    return row.join('');
  }).join('\n');
  console.log(displayString);
}

askQuestion() {
  const answer = prompt('Which way? ').toUpperCase();
  //Implement your codes
}

} //End of Class

```

Task 5: Instantiate Field Class to initialise constructor and generate rows and columns from the generateField Method. Call runGame Method to run the game

```
const myfield = new Field();  
myfield.runGame();
```

Directions:

- **Set your Github repo as a public link, and send** the link of your github repository to (set your repo name as javascriptassessment or findmyhat)
 - genfsd2021@gmail.com
 - ernest36912@gmail.com
- **Reflect** on the following questions in your readme file
 - What did you like about this project?
 - What did you struggle with in this project?
 - What would make your experience with this assessment better?

Now it is time for you to continue the codes to complete the game! Good Luck!

Deadline: 11 May (Wednesday), 9am