Deliverables :

1. html /javascript files with names Program1.html /js ,Program2.html/js …..

2. Lab report containing the screen shot of the javascript code and the output.

1. Create an object called game that represents a competition between two opponents or teams. Add the following properties to game, and assign any value to each property:

    1. winner - An object with properties name and score
    2. loser - An object with properties name and score

Add the following methods to game:

1. getMarginOfVictory() - Returns the difference between the winner's score and the loser's score
2. showSummary() - Outputs to the console the winner's name and score, the loser's name and score, and the margin of victory

Call the two methods to verify the methods work correctly. Example output:

```
Broncos: 24
Panthers: 10
Margin of victory: 14
```

Practice with object maps.

2. Create an object map called courses that stores a university department's course number as the key and an object as the value. The object has three properties: title, description, creditHours. Example courses:

    - 170 - Introduction to Programming, Develop algorithms for computers, 5.
    - 250 - Web Development, Build web applications, 3.
    - 310 - Operating Systems, Process management and memory management, 3.
    - 430 - Artificial Intelligence, Simulate human thinking, 2.

Then, write a for-in loop that displays the course number and title for only those courses that are 3 credit hours.

Sample output :

```
250: Web Development
310: Operating Systems
```

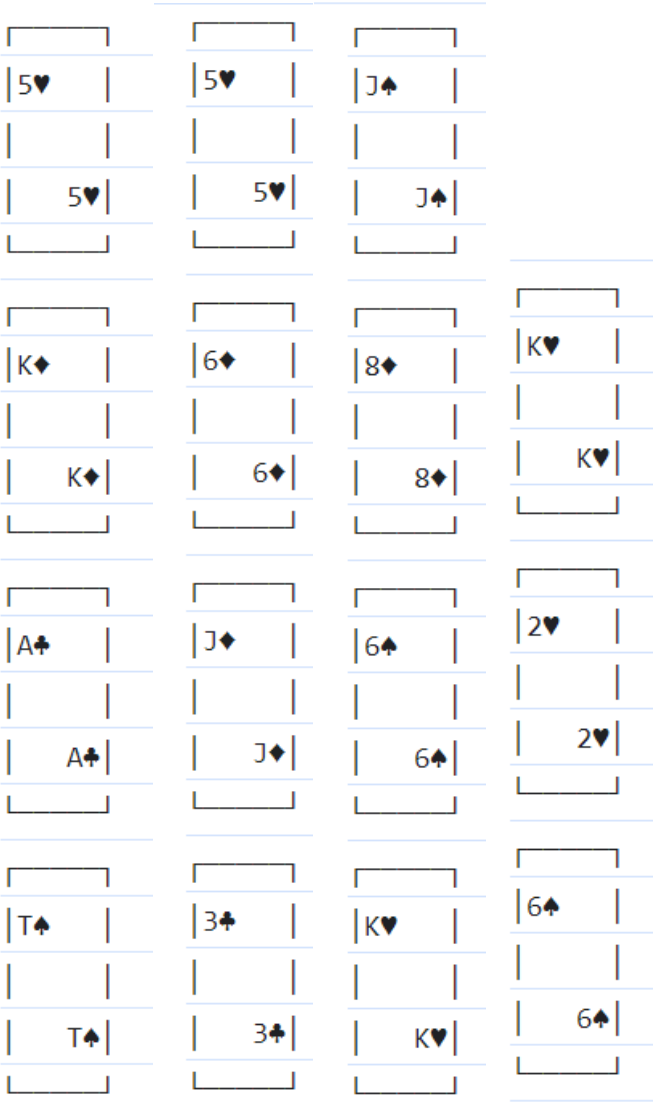
Practice with random numbers.

3. The displayCard(rank, suit) function displays a playing card to the console, given the rank (1-13) and suit (0-3).

Write a for loop that calls displayCard() 10 times, each time with a random rank and suit.

```
// rank should be a number between 1 and 13, and suit between 0 and 3.

function displayCard(rank, suit) {
  switch (rank) {
    case 1: rank = "A"; break;
    case 10: rank = "T"; break;
    case 11: rank = "J"; break;
    case 12: rank = "Q"; break;
    case 13: rank = "K"; break;
    default: if (rank < 1 || rank > 13) {
      console.log("Bad rank value: " + rank);
    }
  }

  switch (suit) {
    case 0: suit = "♥"; break;
    case 1: suit = "♦"; break;
    case 2: suit = "♣"; break;
    case 3: suit = "♠"; break;
    default:  console.log("Bad suit value: " + suit);
  }

  console.log(" ┌─────────┐ ");
  console.log(" │ " + rank + suit + "    │ ");
  console.log(" │         │ ");
  console.log(" │    " + rank + suit + " │ ");
  console.log(" └─────────┘ ");
}

displayCard(5, 0);   // 5 of Hearts
displayCard(13, 1);  // K of Diamonds
displayCard(1, 2);   // A of Clubs
displayCard(10, 3);  // 10 of Spades
```

Sample output :



4. Write the function calcWordFrequencies() in script.js that uses the JavaScript prompt() function to read a list of words (separated by spaces). The function should output those words and their frequencies to the console.

Ex: If the prompt input is:

hey hi Mark hi mark

the console output is:

hey 1

hi 2

Mark 1

mark 1

Hint: Place unique words in a map, where the key is the word, and the associated value is the word's frequency.

Task	Points	Comments
Task 1: Create and Use the `game` Object		
- Create the `game` object with properties	5	Verify that the `game` object is created with the specified properties.
- Assign values to `winner` and `loser` properties	5	Ensure that the `winner` and `loser` properties are assigned values (objects with name and score).
- Implement `getMarginOfVictory` method	5	Implement the `getMarginOfVictory` method correctly.
- Implement `showSummary` method	5	Implement the `showSummary` method correctly.
- Call both methods to verify functionality	5	Verify that both methods are called and provide correct output.

Task	Points	Comments
Task 2: Create and Use the `courses` Object Map		
- Create the `courses` object map	5	Create the `courses` object map with course numbers as keys and objects as values.
- Store course information correctly	5	Verify that course information (title, description, creditHours) is stored correctly.
- Write a for-in loop to display 3-credit-hour courses	5	Write a for-in loop that correctly displays course numbers and titles for 3-credit-hour courses.
Task 3: Display Random Playing Cards		
- Implement `displayCard` function	10	Ensure that the `displayCard` function is correctly implemented with valid rank and suit values.
- Generate and display 10 random playing cards	10	Implement a for loop to generate and display 10 random playing cards using `displayCard`.

Task	Points	Comments
Task 4: Calculate Word Frequencies		
- Implement `calculateWordFrequencies` function	10	Implement the `calculateWordFrequencies` function to calculate word frequencies using a map.
- Read and process input using `prompt()`	5	Use the `prompt()` function to read a list of words and process the input correctly.
- Display words and their frequencies	5	Display words and their frequencies in the correct format.
Total Points	60	