

Build a Memory Card Game Using HTML CSS and JavaScript

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A memory game is a type of game that can be used to test or check the memory of a human being. It is a very famous game. In this game, the player has some cards in front of him and all of them facing down initially. The player has to choose a pair of cards at one time and check whether the faces of both cards are matching or not. If the faces of both cards are the same, then the player can keep those cards face up and continue. Otherwise, the player needs to put the picked cards back face down and continue by selecting other cards. In this article, we are going to build a memory game with the help of HTML, CSS, and JavaScript.

Preview:



Technologies Used:

Approach:

HTML

```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="UTF-8">
  <meta name="viewport"
    content="width=device-width, initial-scale=1.0">
  <link rel="stylesheet" href="style.css">
  <title>Memory Card Game</title>
</head>

<body>
  <div class="container">
    <div id="dynamic-cards" class="game-container">
```

```
<div class="heading-container">
  <h1 class="gfg-heading">
    GeeksforGeeks
  </h1>
  <h2 class="game-heading">Click any card to flip it!</h2>
</div>
<div class="cards-container">
  <div class="card">
    <img
      src=
"https://media.geeksforgeeks.org/wp-content/uploads/20231122105630/gfgImage.png"
      class="outline-image">
    <img id="1"
      src=
"https://media.geeksforgeeks.org/wp-content/uploads/20231122102835/html5Image.png"
      alt="HTML Image" class="card-image">
    </div>
    <div class="card">
      <img
        src=
"https://media.geeksforgeeks.org/wp-content/uploads/20231122105630/gfgImage.png"
        class="outline-image">
      <img id="2"
        src=
"https://media.geeksforgeeks.org/wp-content/uploads/20231122102834/JSImage.jpg"
        alt="JavaScript Image" class="card-image">
      </div>
      <div class="card">
        <img
          src=
"https://media.geeksforgeeks.org/wp-content/uploads/20231122105630/gfgImage.png"
          class="outline-image">
        <img id="3"
          src=
"https://media.geeksforgeeks.org/wp-content/uploads/20231122102834/CSS3Image.png"
          alt="CSS Image" class="card-image">
        </div>
        <div class="card">
          <img
            src=
"https://media.geeksforgeeks.org/wp-content/uploads/20231122105630/gfgImage.png"
            class="outline-image">
          <img id="4"
            src=
```

```
"https://media.geeksforgeeks.org/wp-content/uploads/20231122102834/JSImage.jpg"
    alt="JavaScript Image" class="card-image">
</div>

<div class="card">
    <img
        src=
        "https://media.geeksforgeeks.org/wp-content/uploads/20231122105630/gfgImage.png"
        class="outline-image">
    <img id="5"
        src=
        "https://media.geeksforgeeks.org/wp-content/uploads/20231122102835/html5Image.png"
        alt="HTML Image" class="card-image">
</div>
<div class="card">
    <img
        src=
        "https://media.geeksforgeeks.org/wp-content/uploads/20231122105630/gfgImage.png"
        class="outline-image">
    <img id="6"
        src=
        "https://media.geeksforgeeks.org/wp-content/uploads/20231122102833/vueImage.png"
        alt="VUE Image" class="card-image">
</div>
<div class="card">
    <img
        src=
        "https://media.geeksforgeeks.org/wp-content/uploads/20231122105630/gfgImage.png"
        class="outline-image">
    <img id="7"
        src=
        "https://media.geeksforgeeks.org/wp-content/uploads/20231122102834/CSS3Image.png"
        alt="CSS Image" class="card-image">
</div>
<div class="card">
    <img
        src=
        "https://media.geeksforgeeks.org/wp-content/uploads/20231122105630/gfgImage.png"
        class="outline-image">
    <img id="8"
        src=
        "https://media.geeksforgeeks.org/wp-content/uploads/20231122102833/reactImage.png"
        alt="React Image" class="card-image">
</div>
```

```
<div class="card">
  <img
    src=
"https://media.geeksforgeeks.org/wp-content/uploads/20231122105630/gfgImage.png"
    class="outline-image">
  <img id="9"
    src=
"https://media.geeksforgeeks.org/wp-content/uploads/20231122102833/vueImage.png"
    alt="VUE Image" class="card-image">
</div>
<div class="card">
  <img
    src=
"https://media.geeksforgeeks.org/wp-content/uploads/20231122105630/gfgImage.png"
    class="outline-image">
  <img id="10"
    src=
"https://media.geeksforgeeks.org/wp-content/uploads/20231122102833/AngularImage.png"
    alt="Angular Image" class="card-image">
</div>
<div class="card">
  <img
    src=
"https://media.geeksforgeeks.org/wp-content/uploads/20231122105630/gfgImage.png"
    class="outline-image">
  <img id="11"
    src=
"https://media.geeksforgeeks.org/wp-content/uploads/20231122102833/reactImage.png"
    alt="React Image" class="card-image">
</div>
<div class="card">
  <img
    src=
"https://media.geeksforgeeks.org/wp-content/uploads/20231122105630/gfgImage.png"
    class="outline-image">
  <img id="12"
    src=
"https://media.geeksforgeeks.org/wp-content/uploads/20231122102833/AngularImage.png"
    alt="Angular Image" class="card-image">
</div>
</div>

<div class="progress-container">
```

```
        <div class="move-counter">Moves: 0</div>
        <button id="restart" class="restart-button">
            Restart Game
        </button>
    </div>
</div>
</div>

<script src="script.js"></script>
</body>

</html>
```

CSS

```
body{
    margin: 0;
    padding: 0;
    box-sizing: border-box;
}
```

```
.container{
    display: flex;
    align-items: center;
    justify-content: center;
    height: 100vh;
}
```

```
.game-container{
    width: 800px;
    padding: 20px;
    border-radius: 10px;
    row-gap: 15px;
    box-shadow: rgba(99, 99, 99, 0.2) 0px 2px 8px 0px;
    background-image: linear-gradient(90deg, #ffbd5, #ccc);
}
```

```
.cards-container{  
  display: grid;  
  grid-template-rows: 125px 125px 125px;  
  grid-template-columns: 200px 200px 200px 200px;  
  grid-gap: 20px 10px;  
  place-items: center;  
}
```

```
.heading-container{  
  text-align: center;  
}
```

```
.gfg-heading{  
  color: #0E9D57;  
}
```

```
.card{  
  justify-items: center;  
  display: flex;  
  align-items: center;  
  position: relative;  
  cursor: pointer;  
}
```

```
.outline-image{  
  position: absolute;  
  border-radius: 10px;  
  top: 0;  
  left: 0;  
  height: 125px;  
  width: 125px;  
  border-radius: 50%;
```

```
}
```

```
.card-image{  
  height: 125px;  
  width: 125px;  
  transform: rotateY(90deg);  
  transition: all ease-in 0.25s;  
  mix-blend-mode: multiply;  
}
```

```
.progress-container{  
  text-align: center;  
  display: flex;  
  justify-content: space-around;  
  width: 100%;  
  margin: 50px 0 20px 0;  
}
```

```
.move-counter{  
  padding: 10px 20px;  
  border-radius: 25px;  
  border: 1px solid #ccc;  
}
```

```
.restart-button{  
  padding: 10px 20px;  
  background-color: #0E9D57;  
  border: none;  
  border-radius: 25px;  
  color: #fff;  
  cursor: pointer;  
}
```



```
.restart-button:hover{
    background-color: transparent;
    border: 1px solid #0E9D57;
    color: #0E9D57;
}
```

```
/* Dynamic classes that are being added by JavaScript */
```

```
.toggled .card-image {
    transform: rotateY(0deg);
    transition-delay: 0.25s;
}
```

```
.item .outline-image {
    transition: all ease-in 0.25s;
    transition-delay: 0.25s;
}
```

```
.toggled .outline-image {
    transform: rotateY(90deg);
    transition-delay: 0s;
}
```

```
@media screen and (max-width: 767px) {
    .game-container{
        width: 100%;
    }
}
```

```
.cards-container{
    grid-template-rows: 125px 125px 125px 125px;
    grid-template-columns: 33% 33% 33%;
    grid-gap: 10px 10px;
```

```

}

.outline-image{
  height: 100px;
  width: 100px;
}

.card-image{
  height: 100px;
  width: 100px;
}

.progress-container{
  margin: 10px 0 10px 0;
}

}

```

JAVA

```

const cards =
  document.getElementsByClassName('card');
let allImages = document.getElementsByClassName('card-image');
let movesDisplay = document.querySelector('.move-counter');
let toggledCardsArray = [];
let move = 0;
let winCount = 0;
const restart = document.getElementById('restart');

const imagesLinkArray = [
  {
    id: 1,
    image:
'https://media.geeksforgeeks.org/wp-content/uploads/20231122102833/AngularImage.png',

```

```
    newAlt: 'Angular Image'
  },
  {
    id: 2,
    image:
'https://media.geeksforgeeks.org/wp-content/uploads/20231122102835/html5Image.png',
    newAlt: 'HTML Image'
  },
  {
    id: 3,
    image:
'https://media.geeksforgeeks.org/wp-content/uploads/20231122102834/JSImage.jpg',
    newAlt: 'JavaScript Image'
  },
  {
    id: 4,
    image:
'https://media.geeksforgeeks.org/wp-content/uploads/20231122102833/reactImage.png',
    newAlt: 'React Image'
  },
  {
    id: 5,
    image:
'https://media.geeksforgeeks.org/wp-content/uploads/20231122102833/vueImage.png',
    newAlt: 'Vue Image'
  },
  {
    id: 6,
    image:
'https://media.geeksforgeeks.org/wp-content/uploads/20231122102834/JSImage.jpg',
    newAlt: 'JavaScript Image'
  },
  {
    id: 7,
    image:
```

```
'https://media.geeksforgeeks.org/wp-content/uploads/20231122102833/vueImage.png',
  newAlt: 'Vue Image'
},
{
  id: 8,
  image:
'https://media.geeksforgeeks.org/wp-content/uploads/20231122102835/html5Image.png',
  newAlt: 'HTML Image'
},
{
  id: 9,
  image:
'https://media.geeksforgeeks.org/wp-content/uploads/20231122102834/CSS3Image.png',
  newAlt: 'CSS Image'
},
{
  id: 10,
  image:
'https://media.geeksforgeeks.org/wp-content/uploads/20231122102833/AngularImage.png',
  newAlt: 'Angular Image'
},
{
  id: 11,
  image:
'https://media.geeksforgeeks.org/wp-content/uploads/20231122102834/CSS3Image.png',
  newAlt: 'CSS Image'
},
{
  id: 12,
  image:
'https://media.geeksforgeeks.org/wp-content/uploads/20231122102833/reactImage.png',
  newAlt: 'React Image'
}
]
```

```

// function to restart the game
const restartGame = () => {
  let toggledCard =
    document.getElementsByClassName('card toggled');
  imagesLinkArray.sort(() => Math.random() - 0.5);
  Object.values(toggledCard).forEach(function (el) {
    setTimeout(() => {
      el.classList.remove("toggled");
    }, 0);
  })
  toggledCardsArray.length = 0;
  move = 0;
  winCount=0;
  movesDisplay.innerText = `Moves: ${move}`;
  let allImagesSrc = document.getElementsByClassName('card-image');
  Object.values(allImagesSrc).forEach((el, index)=>{
    el.src = imagesLinkArray[index].image;
    el.alt = imagesLinkArray[index].newAlt;
    el.id = imagesLinkArray[index].id
  })
}
restart.addEventListener('click', restartGame);

//checking for the last clicked and current
//clicked cards and applying changes accordingly
for (var i = 0; i < cards.length; i++) {
  cards[i].addEventListener('click', function () {
    this.classList.add("toggled");
    toggledCardsArray.push(this);
    let thisImgSrc = this.querySelector('.card-image').src;
    let previousImgSrc =
      toggledCardsArray[toggledCardsArray.length -
2].querySelector('.card-image').src;
    if(thisImgSrc !== previousImgSrc) {
      toggledCardsArray.forEach(function (el) {
        setTimeout(() => {
          el.classList.remove("toggled");
        }, 500);
      })
    }
  })
}

```

```
        toggledCardsArray.length = 0;
        move++;
    }
    else{
        toggledCardsArray.length = 0;
        move++;
        winCount++;
    }
    movesDisplay.innerText = `Moves: ${move}`;
    if(winCount===6){
        setTimeout(()=>{
            alert(`Congratulations!!! You won the game in ${move} moves.`)
        }, 300)
    }
    })
}
```

Example: The below example will explain how you can create an memory card game using HTML, CSS and JavaScript: