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1. Cards game

HTML Section

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8" />
  <meta name="viewport" content="width=device-width, initial-scale=1"
/>
  <title>Card Game</title>
  <link rel="stylesheet" href="style.css" />
</head>
<body>
  <div class="game">
    <h1>Higher Card Wins</h1>

    <label for="mode-select">Select Mode: </label>
    <select id="mode-select">
      <option value="random">Random Draw</option>
      <option value="sequential">Sequential Run</option>
      <option value="choose">Choose Cards</option>
    </select>

    <label for="player-card-select">Pilih Kartu Player:</label>
    <select id="player-card-select"></select>

    <label for="computer-card-select">Pilih Kartu Komputer:</label>
    <select id="computer-card-select"></select>

    <div class="cards">
      <div>
        <h2>You</h2>
        <div class="card" id="player-card">▒</div>
      </div>
      <div>
        <h2>Computer</h2>
        <div class="card" id="computer-card">▒</div>
      </div>
    </div>

    <button id="draw-btn">Draw Card</button>
    <p id="result"></p>
  </div>

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

CSS Section

```
body {
  background-color: #0e0e0e;
  color: white;
  font-family: Arial, sans-serif;
  text-align: center;
  margin: 0;
  padding: 20px;
}

.game {
  max-width: 500px;
  margin: auto;
}

.cards {
  display: flex;
  justify-content: space-around;
  margin: 30px 0;
}

.card {
  font-size: 80px;
  background-color: white;
  color: black;
  width: 100px;
  height: 140px;
  display: flex;
  align-items: center;
  justify-content: center;
  border-radius: 10px;
  box-shadow: 0 0 10px #fff;
}

button {
  padding: 10px 30px;
  font-size: 16px;
  background-color: #4caf50;
  color: white;
  border: none;
  border-radius: 5px;
  cursor: pointer;
  margin-top: 10px;
}

#result {
  font-size: 20px;
  margin-top: 20px;
}
```

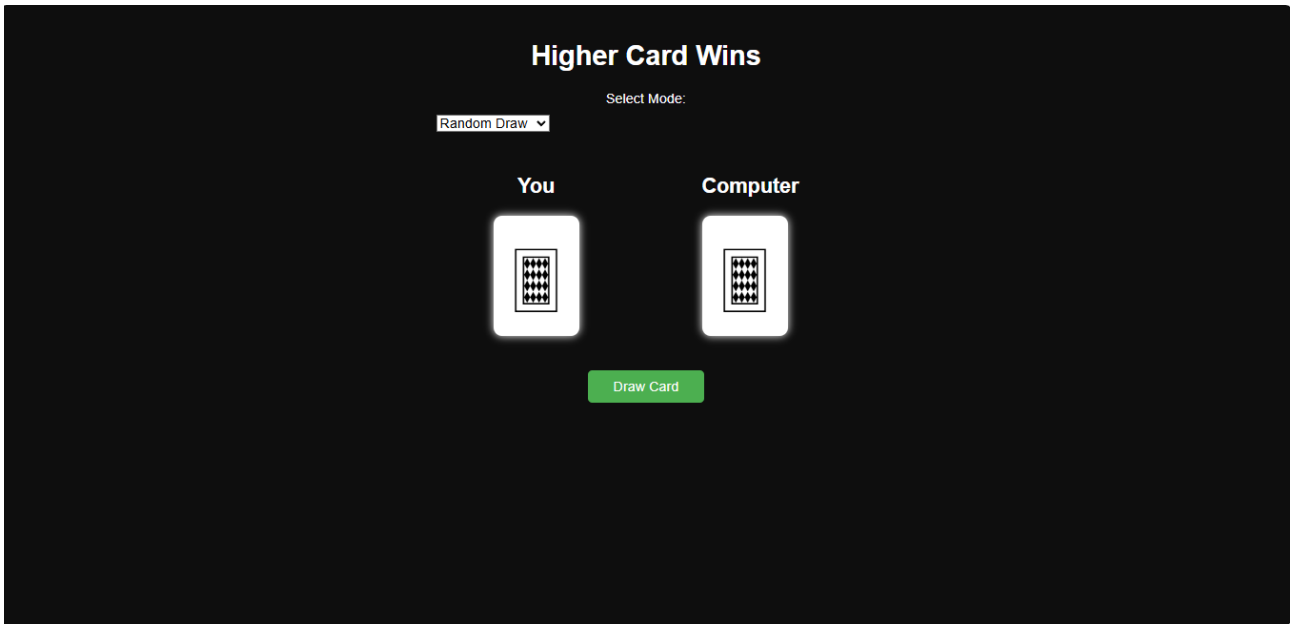
```
label, select {
  font-size: 16px;
  margin: 10px 5px 5px 5px;
  display: block;
}

/* Hide card selects by default */
#player-card-select,
#computer-card-select,
label[for="player-card-select"],
label[for="computer-card-select"] {
  display: none;
}

/* Show selects when mode is choose */
.mode-choose #player-card-select,
.mode-choose #computer-card-select,
.mode-choose label[for="player-card-select"],
.mode-choose label[for="computer-card-select"] {
  display: inline-block;
  margin-right: 10px;
}
```

JS Section

```
const suits = ['♠', '♥', '♦', '♣'];
const values = ['2', '3', '4', '5', '6', '7', '8', '9', '10', 'J', 'Q',
'K', 'A'];

function createAllCards() {
  const allCards = [];
  for (const value of values) {
    for (const suit of suits) {
      allCards.push({ value, suit });
    }
  }
  return allCards;
}

const allCards = createAllCards();

const playerCardSelect = document.getElementById('player-card-select');
const computerCardSelect = document.getElementById('computer-card-
select');

function fillCardSelect(selectElem) {
  allCards.forEach(card => {
    const option = document.createElement('option');
    option.value = card.value + card.suit;
    option.textContent = card.value + card.suit;
```

```
    selectElem.appendChild(option);
  });
}

fillCardSelect(playerCardSelect);
fillCardSelect(computerCardSelect);

function parseCard(str) {
  // For "10♥" length=3, for "Q♠" length=2
  if (str.length === 3) {
    return { value: str.slice(0, 2), suit: str[2] };
  } else {
    return { value: str[0], suit: str[1] };
  }
}

function getCardStrength(value) {
  return values.indexOf(value);
}

// For sequential mode: keep index counters
let playerIndex = 0;
let computerIndex = 0;

const modeSelect = document.getElementById('mode-select');
const gameDiv = document.querySelector('.game');

modeSelect.addEventListener('change', () => {
  if (modeSelect.value === 'choose') {
    gameDiv.classList.add('mode-choose');
  } else {
    gameDiv.classList.remove('mode-choose');
  }
});

document.getElementById('draw-btn').addEventListener('click', () => {
  const mode = modeSelect.value;

  let playerCard, computerCard;

  if (mode === 'random') {
    playerCard = allCards[Math.floor(Math.random() * allCards.length)];
    computerCard = allCards[Math.floor(Math.random() * allCards.length)];
  } else if (mode === 'sequential') {
    playerCard = allCards[playerIndex % allCards.length];
    computerCard = allCards[computerIndex % allCards.length];

    playerIndex++;
    computerIndex++;
  } else if (mode === 'choose') {
    playerCard = parseCard(playerCardSelect.value);
```

```
    computerCard = parseCard(computerCardSelect.value);
  }

  document.getElementById('player-card').textContent = playerCard.value +
playerCard.suit;
  document.getElementById('computer-card').textContent =
computerCard.value + computerCard.suit;

  const playerStrength = getCardStrength(playerCard.value);
  const computerStrength = getCardStrength(computerCard.value);

  const result = document.getElementById('result');
  if (playerStrength > computerStrength) {
    result.textContent = 'You win!';
  } else if (playerStrength < computerStrength) {
    result.textContent = 'Computer wins!';
  } else {
    result.textContent = "It's a tie!";
  }
});

// Initialize mode UI state on page load
if (modeSelect.value === 'choose') {
  gameDiv.classList.add('mode-choose');
} else {
  gameDiv.classList.remove('mode-choose');
}
```



2. Memory Games

HTML Section

```
<!DOCTYPE html>
```

```
<html lang="en">
<head>
  <meta charset="UTF-8" />
  <meta name="viewport" content="width=device-width, initial-scale=1" />
  <title>Memory Matching Game</title>
  <link rel="stylesheet" href="style.css" />
</head>
<body>
  <h1>Memory Matching Game</h1>
  <div class="game-board" id="game-board"></div>
  <p id="message"></p>
  <button id="restart-btn">Restart Game</button>

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

CSS Section

```
body {
  background-color: #222;
  color: white;
  font-family: Arial, sans-serif;
  text-align: center;
  margin: 0;
  padding: 20px;
}

h1 {
  margin-bottom: 20px;
}

.game-board {
  width: 320px;
  margin: 0 auto;
  display: grid;
  grid-template-columns: repeat(4, 70px);
  grid-gap: 15px;
}

.card {
  width: 70px;
  height: 70px;
  background-color: #444;
  border-radius: 8px;
  cursor: pointer;
  display: flex;
  justify-content: center;
  align-items: center;
```

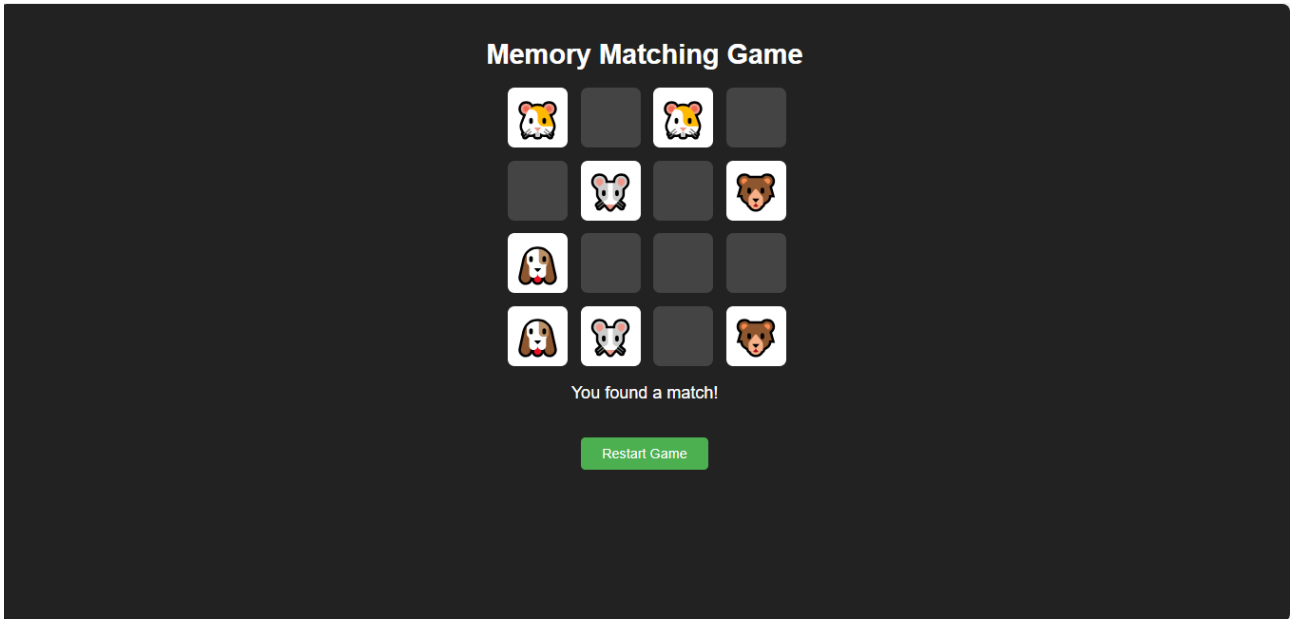
```
  font-size: 40px;
  user-select: none;
  color: #222;
  transition: background-color 0.3s, color 0.3s;
}

.card.flipped, .card.matched {
  background-color: white;
  color: black;
  cursor: default;
}

#message {
  margin-top: 20px;
  font-size: 20px;
  min-height: 24px;
}

#restart-btn {
  margin-top: 20px;
  padding: 10px 25px;
  font-size: 16px;
  border: none;
  border-radius: 5px;
  background-color: #4caf50;
  color: white;
  cursor: pointer;
}
```

JS Section

```
const emojis = ['🐶', '🐱', '🐭', '🐹', '🐰', '🦊', '🐻', '🐼'];

const gameBoard = document.getElementById('game-board');
const message = document.getElementById('message');
const restartBtn = document.getElementById('restart-btn');

let cards = [];
let flippedCards = [];
let matchedCount = 0;

function shuffle(array) {
  for (let i = array.length -1; i > 0; i--) {
    const j = Math.floor(Math.random() * (i+1));
    [array[i], array[j]] = [array[j], array[i]];
  }
  return array;
}

function createCards() {
```

```
  cards = [];

  // duplicate emojis to make pairs
  const pairedEmojis = emojis.concat(emojis);

  // shuffle pairs
  shuffle(pairedEmojis);

  pairedEmojis.forEach((emoji, index) => {
    const card = document.createElement('div');
    card.classList.add('card');
    card.dataset.emoji = emoji;
    card.dataset.index = index;
    card.textContent = ''; // hidden initially

    card.addEventListener('click', onCardClicked);

    cards.push(card);
    gameBoard.appendChild(card);
  });
}

function onCardClicked(e) {
  const card = e.currentTarget;

  if (
    card.classList.contains('flipped') ||
    card.classList.contains('matched') ||
    flippedCards.length === 2
  ) {
    return;
  }

  flipCard(card);
  flippedCards.push(card);

  if (flippedCards.length === 2) {
    checkForMatch();
  }
}

function flipCard(card) {
  card.classList.add('flipped');
  card.textContent = card.dataset.emoji;
}

function unflipCards() {
  flippedCards.forEach(card => {
    card.classList.remove('flipped');
    card.textContent = '';
  });
```

```
  flippedCards = [];
}

function checkForMatch() {
  const [card1, card2] = flippedCards;

  if (card1.dataset.emoji === card2.dataset.emoji) {
    card1.classList.add('matched');
    card2.classList.add('matched');
    matchedCount += 2;
    flippedCards = [];

    if (matchedCount === cards.length) {
      message.textContent = "Congrats! You've matched all pairs!";
    } else {
      message.textContent = "You found a match!";
    }
  } else {
    message.textContent = "No match. Try again!";
    setTimeout(() => {
      unflipCards();
      message.textContent = '';
    }, 1000);
  }
}

function restartGame() {
  matchedCount = 0;
  flippedCards = [];
  message.textContent = '';
  gameBoard.innerHTML = '';
  createCards();
}

restartBtn.addEventListener('click', restartGame);

// Initialize the game on page load
restartGame();
```



3. Puzzle Number

HTML Section

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8" />
  <meta name="viewport" content="width=device-width, initial-scale=1.0"/>
  <title>4x4 Sliding Puzzle</title>
  <link rel="stylesheet" href="style.css" />
</head>
<body>
  <h1>4x4 Sliding Puzzle</h1>
  <div id="puzzle-container"></div>
  <button id="shuffle-button">Shuffle</button>
  <p id="message"></p>
  <script src="script.js"></script>
</body>
</html>
```

CSS Section

```
body {
  font-family: Arial, sans-serif;
  background: #2c3e50;
  color: white;
  text-align: center;
  padding: 20px;
}

#puzzle-container {
  display: grid;
```

```
  grid-template-columns: repeat(4, 80px);
  grid-gap: 6px;
  justify-content: center;
  margin: 20px auto;
}

.tile {
  width: 80px;
  height: 80px;
  background-color: #3498db;
  font-size: 24px;
  font-weight: bold;
  color: white;
  display: flex;
  justify-content: center;
  align-items: center;
  cursor: pointer;
  border-radius: 4px;
  user-select: none;
}

.empty {
  background-color: #34495e;
  cursor: default;
}

#shuffle-button {
  margin-top: 15px;
  padding: 10px 20px;
  font-size: 16px;
  background-color: #f39c12;
  color: white;
  border: none;
  border-radius: 5px;
  cursor: pointer;
}

#message {
  margin-top: 20px;
  font-size: 18px;
}
```

JS Section

```
const container = document.getElementById('puzzle-container');
const shuffleButton = document.getElementById('shuffle-button');
const message = document.getElementById('message');

const GRID_SIZE = 4;
const TILE_COUNT = GRID_SIZE * GRID_SIZE;
```

```
let tiles = [];

function createTiles() {
  tiles = [...Array(TILE_COUNT - 1).keys()].map(x => x + 1);
  tiles.push(null); // empty space
  renderTiles();
}

function renderTiles() {
  container.innerHTML = '';
  tiles.forEach((val, index) => {
    const tile = document.createElement('div');
    tile.classList.add('tile');
    if (val === null) {
      tile.classList.add('empty');
    } else {
      tile.textContent = val;
      tile.addEventListener('click', () => handleTileClick(index));
    }
    container.appendChild(tile);
  });
}

function handleTileClick(index) {
  const emptyIndex = tiles.indexOf(null);
  if (isAdjacent(index, emptyIndex)) {
    [tiles[index], tiles[emptyIndex]] = [tiles[emptyIndex],
tiles[index]];
    renderTiles();
    checkWin();
  }
}

function isAdjacent(i1, i2) {
  const row1 = Math.floor(i1 / GRID_SIZE);
  const row2 = Math.floor(i2 / GRID_SIZE);
  const col1 = i1 % GRID_SIZE;
  const col2 = i2 % GRID_SIZE;
  return (Math.abs(row1 - row2) + Math.abs(col1 - col2)) === 1;
}

function shuffleTiles() {
  do {
    tiles = [...Array(TILE_COUNT - 1).keys()].map(x => x + 1);
    tiles.push(null);
    tiles.sort(() => Math.random() - 0.5);
  } while (!isSolvable(tiles));
  renderTiles();
  message.textContent = '';
}
```

```
function isSolvable(array) {
  const invCount = array
    .filter(n => n !== null)
    .reduce((inv, val, i) => {
      for (let j = i + 1; j < array.length; j++) {
        if (array[j] !== null && array[j] < val) inv++;
      }
      return inv;
    }, 0);

  const emptyRowFromBottom = GRID_SIZE - Math.floor(array.indexOf(null) /
GRID_SIZE);
  if (GRID_SIZE % 2 === 0) {
    return (invCount + emptyRowFromBottom) % 2 === 0;
  } else {
    return invCount % 2 === 0;
  }
}

function checkWin() {
  const winState = [...Array(TILE_COUNT - 1).keys()].map(x => x +
1).concat([null]);
  if (tiles.every((val, i) => val === winState[i])) {
    message.textContent = '🎉 You solved it!';
  }
}

shuffleButton.addEventListener('click', shuffleTiles);

createTiles();
```