Javascript Tasks

1. **Explain the difference between var, let, and const. Provide examples.**

**Ans.**

**var: Function-scoped, can be re-declared, and has issues with hoisting that might cause confusion.**

**let: Block-scoped, cannot be re-declared in the same scope, and is hoisted but inaccessible until the declaration is encountered.**

**const: Block-scoped, cannot be reassigned or re-declared, but allows modification of object/array properties (not the reference itself).**

**Ex. var**

**var x = 10;**

**console.log(x); // Output: 10**

**var x = 20; // Can re-declare 'x' in the same scope**

**console.log(x); // Output: 20**

**Ex. let**

**let y = 30;**

**console.log(y); // Output: 30**

**y = 40; // Allowed: You can reassign the value**

**console.log(y); // Output: 40**

**Ex. const**

**const z = 50;**

**console.log(z); // Output: 50**

**// z = 60; // Error: 'z' cannot be reassigned**

**// Objects and arrays declared with `const` are mutable (can change properties or elements)**

**const obj = { name: 'John' };**

**obj.name = 'Jane'; // Allowed: Mutating properties of the object**

**console.log(obj); // Output: { name: 'Jane' }**

**// obj = { name: 'Alice' }; // Error: You can't reassign the object**

1. **Write a for loop to print all even numbers between 1 and 10.   
   Ex.**

**for (let i = 1; i <=10; i++){**

**if (i % 2 ===0) {**

**console.log(i);**

**}**

**}**

1. **Write a while loop that keeps doubling a number (starting from 1) until it is greater than or equal to 100.**

**Ex.**

**let number = 1;**

**while (number < 100) {**

**console.log(number);**

**number \*=2;**

**}**