Typescript Practice Assignment

1. Class and Interface: Create a TypeScript class Person with properties name and age. Implement an interface Printable with a method printDetails() that prints the person's name and age.
2. Modules: Create a TypeScript module that exports a function calculateArea which calculates the area of a rectangle given its length and width.
3. Working with Arrays and Interfaces: Define an interface Book with properties title and author. Write a TypeScript function that takes an array of Book objects and prints the titles of all books authored by a given author.
4. Using Classes and Arrays: Create a TypeScript class ShoppingCart with a property items which is an array of strings. Implement methods addItem(item: string), removeItem(item: string), and getItems(): string[] to add, remove, and retrieve items from the cart.
5. Using never Data Type: Write a TypeScript function that takes no parameters and never returns (throws an error instead).
6. Intersection Types: Define two interfaces Printable and Serializable. Create a third interface Document that extends both Printable and Serializable. Implement a TypeScript function that takes an object of type Document and performs actions based on its properties.
7. Union Types with Function Parameters: Write a TypeScript function that takes a parameter of type string or number. If the parameter is a string, return its length; if it's a number, return its square.
8. Handling Errors with try and catch: Write a TypeScript function that takes two numbers as parameters and divides the first number by the second. Handle the case where the second number is 0 using a try-catch block and return an error message.
9. Using Optional Properties: Define an interface User with properties name (required) and email (optional). Write a TypeScript function that creates a new User object with the given name and email if provided.