To create an ASP.NET Web API application for adding, updating, and deleting subject marks for existing students using Visual Studio 2022 Community Edition and SQL Server 2022 Edition, follow these steps:

Step 1: Project Setup

- Launch Visual Studio 2022 Community Edition and create a new ASP.NET Web API project.

Step 2: Database Setup

- Ensure that you have SQL Server 2022 Edition installed and running.
- Create a new database or use an existing one to store student and subject mark information.

Step 3: Model the Database

- Design your database schema to include tables for students, subjects, and subject marks. You can use Entity Framework Code-First approach or SQL Server Management Studio to create the database schema.

Step 4: Establish Database Connection

- Configure your ASP.NET Web API project to connect to the SQL Server database. You can use Entity Framework or ADO.NET to establish the connection.

Step 5: Create API Controllers

- Create API controllers for handling CRUD operations on students and subject marks. These controllers will expose endpoints for adding, updating, and deleting subject marks.

Step 6: Implement API Endpoints

- Implement HTTP GET, POST, PUT, and DELETE methods in your controllers to retrieve, create, update, and delete student data and subject marks.

Step 7: Input Validation

- Implement input validation and error handling to ensure that the data entered by teachers via the mobile app is validated and secure.

Step 8: Security

- Implement authentication and authorization to ensure that only authorized users (teachers) can access and modify student data and subject marks.

Step 9: Testing

- Use tools like Postman or Swagger to test your API endpoints to ensure they work correctly.

Step 10: Documentation

- Create comprehensive API documentation to help mobile app developers understand how to use your API effectively. Tools like Swagger can help automate this process.

Step 11: Deployment

- Deploy your ASP.NET Web API application to a web server or a cloud platform like Azure or AWS. Ensure proper configuration and security measures are in place.

Step 12: Maintenance and Monitoring

- Regularly monitor the API for performance and security issues and perform maintenance tasks as needed to ensure it operates smoothly.
- By following these steps, you can create a robust ASP.NET Web API application that allows teachers to add, update, and delete subject marks for existing students via a mobile app, ensuring data integrity and security.

Step 13: Uploading on Github

- **Git init**
- **Git add.**
- **Git commit –m 'initial commit'**
- **Git directory link**
- **Git push –u origin master**

GitHub Link: https://github.com/rastogi102/Phase3_Practice-Projects.git