Practice 2 - Cloud Deployment

Title: Set Up CI/CD Pipeline using GitHub Actions

Objective:

Understand how to automate testing and deployment using GitHub Actions. Learn to trigger workflows on code pushes, run tests automatically, and deploy artifacts to your hosting environment.

Required Materials:

- A GitHub account
- A GitHub repository containing your Node.js or React application
- Basic knowledge of Git and GitHub Actions

Steps to Follow:

1. **Create a GitHub Repository**
   Push your existing Node.js or React project to a new GitHub repository.

2. **Create a GitHub Actions Workflow File**
   In your project directory, create a folder named `.github/workflows` and inside it, create a file

3. **Add the Following Workflow Configuration**
   ```yaml
   name: CI/CD Pipeline

   on:
     push:
       branches: [ "main" ]

   jobs:
     build:
       runs-on: ubuntu-latest

       steps:
         - name: Checkout repository
           uses: actions/checkout@v4

         - name: Set up Node.js
           uses: actions/setup-node@v4
           with:
             node-version: 18

         - name: Install dependencies
           run: npm install

         - name: Run tests
           run: npm test

         - name: Build the project
           run: npm run build

         # Optional: Deploy to GitHub Pages or another platform
         - name: Deploy to GitHub Pages
           if: success()
           uses: peaceiris/actions-gh-pages@v3
           with:
             github_token: ${{ secrets.GITHUB_TOKEN }}
             publish_dir: ./build
   ```

4. **Commit and Push the Workflow File**
   ```bash
   git add .github/workflows/main.yml
   ```

```
git commit -m "Add GitHub Actions CI/CD pipeline"
git push origin main
```

5. **View Workflow Execution**
   Go to your GitHub repository → Click on the "Actions" tab → You will see the workflow running au

6. **(Optional) Configure Deployment Secrets**
   For deployment to external platforms like Netlify, AWS S3, or Render, configure deployment keys o

7. **Verify Successful Build and Deployment**
   Ensure that tests pass and the deployment is visible on your hosting platform.

Expected Output:

- A fully automated GitHub Actions workflow that runs tests and builds the app on every push.
- Workflow status visible in the repository's "Actions" tab.
- Automatic deployment to the configured hosting platform (if set up).