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Frontend CI + Deploy (S3 + optional CloudFront)

```
name: Frontend CI & Deploy to S3
on:
 push:
  branches: [ "main" ]
jobs:
 build:
  runs-on: ubuntu-latest
  steps:
   - uses: actions/checkout@v4
   - uses: actions/setup-node@v4
     with:
      node-version: 18
   - name: Install & Build React App
     run: |
      cd frontend
      npm ci
      npm run build
```

```
- name: Deploy to S3
 uses: aws-actions/s3-sync@v2
 with:
  source: ./frontend/build
  destination: s3://${{ secrets.S3_BUCKET }}
  args: --delete
 env:
  AWS_ACCESS_KEY_ID: ${{ secrets.AWS_ACCESS_KEY_ID }}
  AWS_SECRET_ACCESS_KEY: ${{ secrets.AWS_SECRET_ACCESS_KEY }}
  AWS_REGION: us-east-1
- name: Invalidate CloudFront Cache (optional)
 if: ${{ secrets.CLOUDFRONT_DISTRIBUTION_ID != " }}
 uses: chetan/invalidate-cloudfront-action@v2
 with:
  distribution: ${{ secrets.CLOUDFRONT_DISTRIBUTION_ID }}
  paths: "/*"
  aws-region: us-east-1
 env:
  AWS_ACCESS_KEY_ID: ${{ secrets.AWS_ACCESS_KEY_ID }}
  AWS_SECRET_ACCESS_KEY: ${{ secrets.AWS_SECRET_ACCESS_KEY }}
```

Backend CI + Deploy (EC2)

name: Backend CI & Deploy to EC2

```
on:
 push:
  branches: [ "main" ]
jobs:
 test:
  runs-on: ubuntu-latest
  steps:
   - name: Checkout repo
    uses: actions/checkout@v4
   - name: Setup Node.js
    uses: actions/setup-node@v4
     with:
      node-version: 18
   - name: Install dependencies
    run: |
      cd backend
      npm ci
   - name: Run tests
    run: |
      cd backend
      npm test
```

deploy:

```
runs-on: ubuntu-latest
needs: test
if: success()
steps:
 - name: Checkout code
  uses: actions/checkout@v4
 - name: Deploy to EC2 via SSH
  uses: appleboy/ssh-action@v1.2.0
  with:
   host: ${{ secrets.EC2_HOST }}
   username: ubuntu
   key: ${{ secrets.EC2_SSH_KEY }}
   script: |
    cd /home/ubuntu/app/backend
    git pull origin main
    npm ci
    pm2 restart all
```

Output in image form:

