## Setup CI/CD Pipeline for React App using GitHub Actions

Before proceeding: make sure your application is currently being hosted on S3 using CloudFront, and your code has been moved to GitHub.

• Create a GitHub Action workflow within the folder where your app is located.

## .github/workflows/build-and-deploy.yaml

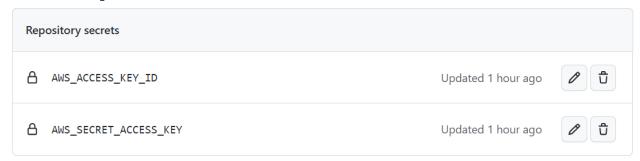
• In this YAML file, configure all the required configurations as shown below.

```
name: Build and Deploy React App to CloudFront
on:
 push:
    branches: [ main ]
jobs:
 build-and-deploy:
    name: Build and Deploy
    runs-on: ubuntu-latest
    env:
     BUCKET: <bucket-name>
     DIST: build
     REGION: us-east-1
     DIST ID: <ID>
    steps:
    - name: Checkout
     uses: actions/checkout@v2
    - name: Configure AWS Credentials
     uses: aws-actions/configure-aws-credentials@v1
     with:
        aws-access-key-id: ${{ secrets.AWS ACCESS KEY ID }}
        aws-secret-access-key: ${{ secrets.AWS_SECRET_ACCESS KEY }}
        aws-region: ${{ env.REGION }}
    # - uses: actions/setup-node@v2
    # with:
         node-version: '14'
```

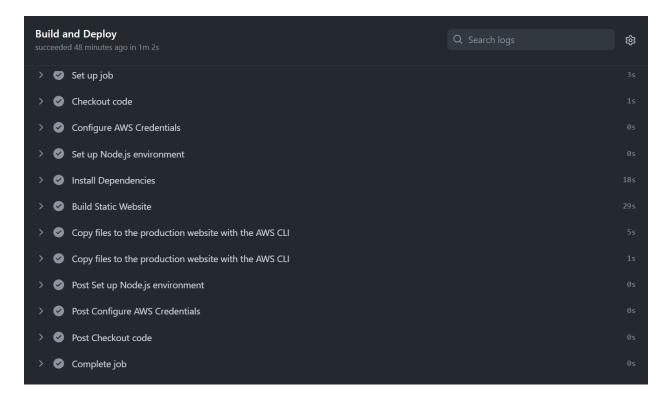
• To allow GitHub Actions to upload files to S3 and create invalidation in CloudFront, it is necessary to generate a new IAM user and assign the necessary authorizations. We should make a policy like below.

```
{
    "Version": "2012-10-17",
    "Statement": [
             "Sid": "ListObjectsInBucket",
            "Effect": "Allow",
"Action": "s3:ListBucket",
             "Resource": "<your bucket arn>"
             "Sid": "AllObjectActions",
             "Effect": "Allow",
             "Action": "s3:*Object",
             "Resource": "<your bucket arn>/*"
             "Sid": "InvalidateCF",
             "Effect": "Allow",
             "Action": "cloudfront:CreateInvalidation",
             "Resource": "*"
        }
   ]
```

- Create a new user with the name "github-actions" and attach the policy specified above to it.
- Navigate to the GitHub repository and set up two secrets, namely AWS\_ACCESS\_KEY\_ID and AWS\_SECRET\_ACCESS\_KEY. These secrets will be used to authenticate and authorize GitHub actions that require access to your Amazon Web Services (AWS) account.



• The Continuous Integration/Continuous Deployment (CI/CD) pipeline has been successfully set up and you can verify its functionality by making changes to the source code. After committing and pushing the changes, the pipeline will be triggered, and you can observe the process in GitHub Actions.



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