

# GitHub Actions YAML Roadmap (Interview-Focused)

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## 1. Core Concepts for Interviews

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- GitHub Actions allows CI/CD automation using YAML syntax.
- Workflow file stored in: `.github/workflows/<filename>.yml`
- Workflow = triggers + jobs + steps + actions.
- Each job runs on a runner (VM/container).

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## 2. YAML Workflow Template

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name: CI Pipeline

on:

push:

branches: [ main ]

jobs:

build:

runs-on: ubuntu-latest

steps:

- name: Checkout code

uses: actions/checkout@v4

- name: Setup Node

uses: actions/setup-node@v3

with:

node-version: '18'

- name: Run build

run: npm run build

- name: Deploy

if: github.ref == 'refs/heads/main'

run: echo "Deploying..."

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### 3. Key Keywords (Interview Definitions)

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- on - Defines workflow trigger (push, pull\_request, etc.)
- jobs - Contains multiple job definitions.
- runs-on - Specifies runner environment.
- needs - Defines job dependencies.
- steps - List of commands or prebuilt actions.
- uses - Reuses existing GitHub Actions.
- run - Executes shell commands.
- with - Passes input parameters to action.
- env - Defines environment variables.
- if - Conditional execution based on context.

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### 4. Common Interview Questions

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Q1: What is the difference between `run` and `uses`?

A1: `run` executes shell commands; `uses` executes prebuilt GitHub Actions.

Q2: What is the purpose of `runs-on`?

A2: It specifies the type of runner machine (Ubuntu, Windows, etc.).

Q3: Can multiple jobs run in parallel?

A3: Yes, unless controlled by ``needs:`` dependency.

Q4: What are reusable workflows?

A4: Workflows stored in one repo that can be called by others using ``workflow_call``.

Q5: How can you manually trigger a workflow?

A5: Using ``on: workflow_dispatch``.

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## 5. Pro Interview Tip

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- Always emphasize your understanding of CI/CD flow.
- Mention you can build workflows that lint, test, build, and deploy apps.
- Know how to cache dependencies using actions/cache.
- Be ready to write a small sample YAML on the whiteboard.

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## 6. Mini Challenge

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Create a workflow with:

- Trigger: push on "main"
- Job 1: build (runs-on ubuntu-latest)
- Job 2: test (depends on build)
- Each job prints a message