GitHub Actions YAML Roadmap (Beginner-Friendly)

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1. Basic Structure of a GitHub Actions Workflow

```yaml
name: <workflow-name>

on:

  <event>:

    <filters>

jobs:

  <job-name>:

    runs-on: <machine>

    steps:

      - name: <step-name>

        uses: <action> or run: <command>
```

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2. Section Explanation

- name: (Optional)

    -> Defines workflow name shown in GitHub UI.

- on:

    -> Defines when workflow triggers.

        Example: push, pull_request, schedule, workflow_dispatch

- jobs:

    -> Each job runs on its own runner (VM/container).

- <job-name>:

-> Your custom job identifier (e.g., build, test, deploy).

- runs-on:

   -> Defines operating system or runner type.

      Example: ubuntu-latest, windows-latest, macos-latest

- steps:

   -> A list of actions or shell commands executed sequentially.

- uses:

   -> Executes pre-built GitHub Action.

      Example: actions/checkout@v4

- run:

   -> Executes a shell command directly.

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3. Example: Build and Test Node.js Project

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name: Node CI

on: [push]

jobs:

  build:

   runs-on: ubuntu-latest

   steps:

     - name: Checkout Repo

       uses: actions/checkout@v4

     - name: Setup Node.js

       uses: actions/setup-node@v3

       with:

         node-version: '18'

```
    - name: Install Dependencies

      run: npm install

    - name: Run Tests

      run: npm test
```

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4. Common Mistakes to Avoid

[X] Wrong indentation - YAML is space-sensitive.

[X] Using tabs instead of spaces.

[X] Using wrong keywords (e.g., "server" instead of "runs-on").

[X] Missing 'jobs:' key at the top level.