

GrandFinal Round - Data migration

Task 2: Write a GitHub action run consistency check.

Evaluation

[✓] GitHub action pipeline check for mandatory attributes

[✓] Consistency check for Accepted status

[✓] Clean code

Installation

1. Add all file workflow definitions in `.github/workflows`:

`lintrst.yaml`

```
name: Lint

on: [workflow_call]

jobs:
  doctor-rst:
    name: DOctor-RST
    runs-on: ubuntu-latest
    steps:
      - name: "Checkout code"
        uses: actions/checkout@v2

      - name: DOctor-RST
        uses: docker://oskarstark/doctor-rst
        with:
          args: --short --error-format=github
        env:
          DOCS_DIR: "docs/"
```

`validate.yaml`

```
name: Validate
on:
  push:
    paths:
      - "**.rst"
jobs:
  doctorst:
    uses: ../.github/workflows/lintrst.yaml
```

```
validate:
  needs: ["doctorst"]
  runs-on: ubuntu-latest
  steps:
    - uses: actions/checkout@v3
    - uses: actions/setup-python@v3
    - name: Install dependencies
      run: |
        pip install actions-toolkit xmltodict
        pip install -r requirements.txt
    - name: Build XML
      run: |
        sphinx-build docs _xml_build -b xml
    - name: Run consistency check
      run: |
        python validate.py -i docs/src -xml _xml_build
```

validate.yaml

on: push



doctorst / DOCTOR-RST

8s



validate

42s

Summary

Jobs

doctorst

DOctor-RST

validate

Run details

Usage

Workflow file

validate

succeeded 5 minutes ago in 43s

Set up job

Run actions/checkout@v3

Run actions/setup-python@v3

Install dependencies

Build XML

Run consistency check

Post Run actions/setup-python@v3

Post Run actions/checkout@v3

Complete job

deploy.yaml

```

name: Deploy
on:
  workflow_run:
    workflows: ["Validate"]
    types:
      - completed
permissions:
  contents: write
jobs:
  deploy:
    if: ${ github.event.workflow_run.conclusion == 'success' }}
    runs-on: ubuntu-latest
    steps:
      - uses: actions/checkout@v3
      - uses: actions/setup-python@v3
      - name: Install dependencies
        run: |
          pip install -r requirements.txt
      - name: Sphinx build
        run: |
          sphinx-build docs _build
      - name: Deploy
        uses: peaceiris/actions-gh-pages@v3
        if: ${ github.event_name == 'push' && github.ref ==
'refs/heads/main' }}
        with:
          publish_branch: gh-pages
          github_token: ${ secrets.GITHUB_TOKEN }}

```

```
publish_dir: _build/
force_orphan: true
```

noti.yaml

```
name: Notification
on:
  workflow_run:
    workflows: ["Validate", "Deploy"]
    types:
      - completed
jobs:
  notification:
    runs-on: ubuntu-latest
    steps:
      - name: Send mail
        uses: dawidd6/action-send-mail@v2
        with:
          server_address: smtp.gmail.com
          server_port: 465
          username: ${ secrets.EMAIL_USERNAME }
          password: ${ secrets.EMAIL_PASSWORD }
          subject: "[Notification] Workflow ${ github.event.workflow_run.name } in ${ github.repository } has ${ github.event.workflow_run.conclusion }"
          body: Workflow ${ github.event.workflow_run.name } of ${ github.repository } has ${ github.event.workflow_run.conclusion }
          to:
            haupro186@gmail.com,minhclam2102002@gmail.com,nq23092016@gmail.com
          from: TheThree - ${ github.repository }
```

The screenshot shows the GitHub Actions interface for a workflow run. On the left, a sidebar contains links for 'Summary', 'Jobs', 'Run details', 'Usage', and 'Workflow file'. The 'Jobs' section is active, showing a single job named 'notification' with a green checkmark icon. The main panel displays the details of the 'notification' job, which has 'succeeded now in 4s'. Below the job name, there are two expandable sections: 'Set up job' and 'Send mail'. The 'Send mail' section is expanded, showing a list of 11 steps. Step 1 is 'Run dawidd6/action-send-mail@v2', which is further expanded to show the 'with:' section containing configuration details for the email action. The steps conclude with 'Complete job'.

```
notification
succeeded now in 4s

> [✓] Set up job

v [✓] Send mail

1 ▼ Run dawidd6/action-send-mail@v2
2   with:
3     server_address: smtp.gmail.com
4     server_port: 465
5     username: ***
6     password: ***
7     subject: [Notification] Workflow Deploy in R2th/Test-github-api has skipped
8     body: Workflow Deploy of R2th/Test-github-api has skipped
9     to: haupro186@gmail.com,minhclam2102002@gmail.com
10    from: TheThree - R2th/Test-github-api
11    content_type: text/plain

> [✓] Complete job
```

2. Creating **secrets** fields for the repository

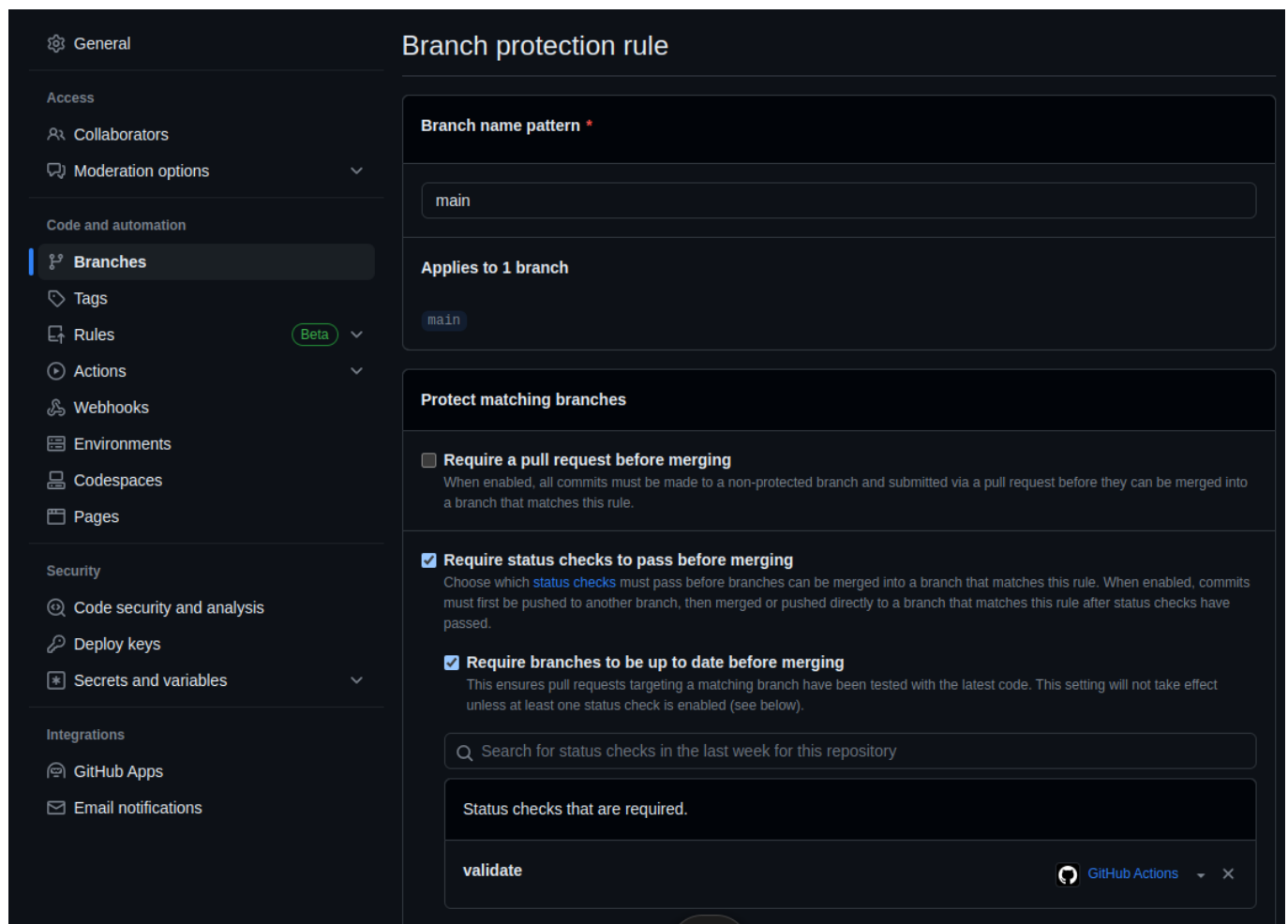
- You must have add the **EMAIL_USERNAME** and **EMAIL_PASSWORD**
- You can following this [documentation](#)

3. Turn on the **Github Pages** feature

- Already described in the previous round.

4. Turn on **Protected the branch** feature

- You can following this [documentation](#)
- Here we want to protect the branch **main** and select **Require status checks to pass before merging** with **Status checks that are required.** is **validate** from Github Action



5. Turn on automatic merge pull request

- You can following this [documentation](#)

Control how and when users are prompted to update their branches if there are new changes available in the base branch.

☒ **Always suggest updating pull request branches** ✓

Whenever there are new changes available in the base branch, present an "update branch" option in the pull request.

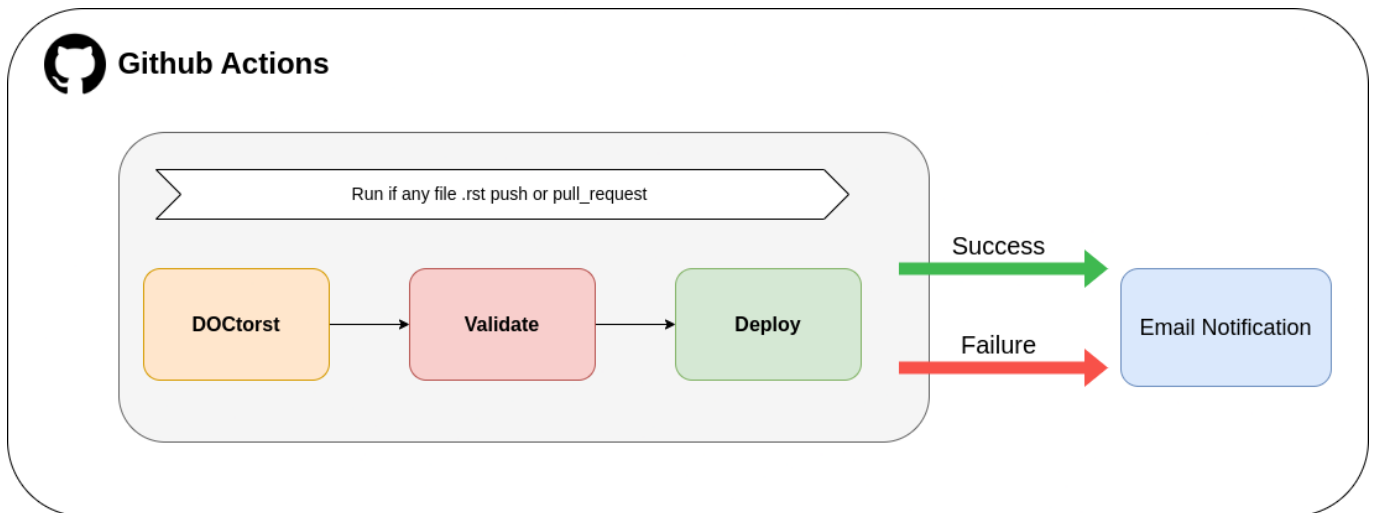
You can allow setting pull requests to merge automatically once all required reviews and status checks have passed.

☒ **Allow auto-merge** ✓

Waits for merge requirements to be met and then merges automatically. [Learn more](#)

Overview Github action pipeline

- Following the pipeline was designed below. If any workflow error occurs like **DOctorst**, **Validate**, the next one will be ignored or skipped. And after that it will trigger to the workflow **Notifications** to send the workflow status notification by email.



The pipeline will be executed when the repository have any change like **push**, **pull_request** with file **.rst**.

1. DOctorst

- Using like as consistency to documentation, easy add more rule like check grammar of the documentation
- You can find the documentation of the DOctorst here: [DOctorst](#)
- You should add file **.doctor-rst.yaml** to the folder you want to check consistency

```
rules:
  american_english: ~
```

2. Validate

a. Option 1: Use **sphinx-needs** to parse **rst** to **xml**

- After run DOctorst check grammar of the documentation, we next to need check rules which need to be applied:
- The rules said:
 - The `status`, `crq`, `verification criteria` and `safety_level` attributes are `mandatory` and cannot be empty.
 - If the `status` is "Accepted", the `allocation` attribute is mandatory.
- Because content in the first `.rst` not be readable by any library of Python and it not be accessible. So we need the temporary content file which export easiest from `.rst` folder and easily for readability. We choose to convert to a temporary file `.xml` by `sphinx` and `sphinx-needs`.

```
sphinx-build docs _xml_build -b xml
```

- After build `.xml` successfully which store in folder `_xml_build`, we read the content by `xmltodict` and parse the information needed to validate the rules.

```
└─ python validate.py -h
usage: validate.py [-h] [-i INPUTS] [-xml XML_OUTPUT]

options:
  -h, --help            show this help message and exit
  -i INPUTS, --inputs INPUTS
                        Path to the folder containing all the rst
                        files
  -xml XML_OUTPUT, --xml_output XML_OUTPUT
                        Path to output after run sphinx builder xml
```

```
python validate.py -i docs/src -xml _xml_build
```

- If any error is encountered. We will using `actions_toolkit` to exit code execution when it is running in workflow and using the format message below.

```
<Module path>
  <Requirement ID> - <Requirement Type>
    ERROR: field '<attribute Name>' must be filled
  ...
<Module 2 path>
  <Requirement ID> - <Requirement Type>
    ERROR: field '<attribute Name>' must be filled
```

- Example:

```
Error: docs/src/ECU_Requirement.rst
  sw_req - 629014
    ERROR:field 'safety_level' must be filled
    ERROR:field 'crq' must be filled
Error: docs/src/Test_2.rst
  sys_req - 222225
    ERROR:field 'verify' must be filled
  sw_req - 222226
    ERROR:field 'allocation' must be filled
    ERROR:field 'verify' must be filled
Error: Process completed with exit code 1.
```

b. Option 2: Use Regular Expression to validate (Optional)

- Besides parsing to XML format which is readable, we also adapt another method, which is using RegEx pattern matching to retrieve **rst** content and validate its consistency.
- Note that this solution is just a side-solution and is not as effective as the Option 1. For more detail, please refer the source code at the [regex_validate.py](#)

3. Deploy


- Already explain in the previous round

Output


1. Check consistency before **pull_request**


Success

Succes branch merge #22


 Open R2th wants to merge 3 commits into `main` from `succes_branch_merge` 


 Conversation 0  Commits 3  Checks 4  Files changed 0






R2th commented 4 hours ago Owner  Tip ...




No description provided.








R2th added 2 commits 5 hours ago


  Delete 19.rst Verified  a9e5a6f


  Merge branch 'main' into test Verified  bb2faf1



  Merge branch 'main' into succes_branch_merge Verified  1ffb67c



Add more commits by pushing to the `succes_branch_merge` branch on `R2th/Test-github-api`.


 **This branch has not been deployed**
No deployments




 **All checks have passed** Hide all checks
2 successful checks

  **Validate / doctorst / DOCTOR-RST (push)** Successful in 5s Details

  **Validate / validate (push)** Successful in 43s Required Details

 **This branch has no conflicts with the base branch**
Merging can be performed automatically.

Merge pull request 

 or view [command line instructions](#).

Failed

Open

Failed branch merge #21

R2th wants to merge 2 commits into `main` from `failed_branch_merge`

R2th commented 5 hours ago

No description provided.

R2th added 2 commits 5 hours ago

Update `ECU_Requirement.rst`

Verified 49277fd

Update `Test_2.rst`

Verified 9742f01

Add more commits by pushing to the `failed_branch_merge` branch on `R2th/Test-github-api`.

This branch has not been deployed

No deployments

Some checks were not successful

1 successful and 1 failing checks

Hide all checks

✓

Validate / doctorst / DOctor-RST (push)

Successful in 8s

Details

✗

Validate / validate (push)

Failing after 37s

Required

Details

This branch has conflicts that must be resolved

Use the [web editor](#) or the [command line](#) to resolve conflicts.

Conflicting files

docs/src/ECU_Requirement.rst

docs/src/Test_2.rst

Resolve conflicts

Merge pull request

or view [command line instructions](#).

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2. Notifications to the email

