

Build Documentation

| | |
|---------------------|--|
| Name | Password Vault |
| Team | Group 5 |
| Contributors | Ayush Verma, Deep Adeshra, Manasvi Sharma, Pooja Anandani and Shalin Awadiya |
| TA | Ruchi Shinde |
| Technology | Django and React |
| Cloud | AWS and Timberlea |
| Database | MySQL |
| Status | COMPLETE |

Problem Statement

Building an end-to-end highly encrypted password vault that has capabilities of adding lists and notes.

Technology Used

| | |
|---------------------|--|
| Backend | <ul style="list-style-type: none">• Python3 with Django |
| Cloud and DB | <ul style="list-style-type: none">• Amazon Web Services (AWS)• MySQL on Dal Timberlea |
| Frontend | <ul style="list-style-type: none">• ReactJS |

Installation and build instructions

System requirements for building on the local system :

1. Python 3.6
2. MySQL
3. NodeJS

Once prerequisite requirements are satisfied, follow the steps:

1. Git clone the repository and checkout the master branch.

```
$ git clone https://git.cs.dal.ca/courses/2022-winter/csci-5308/group5
$ git checkout master
```

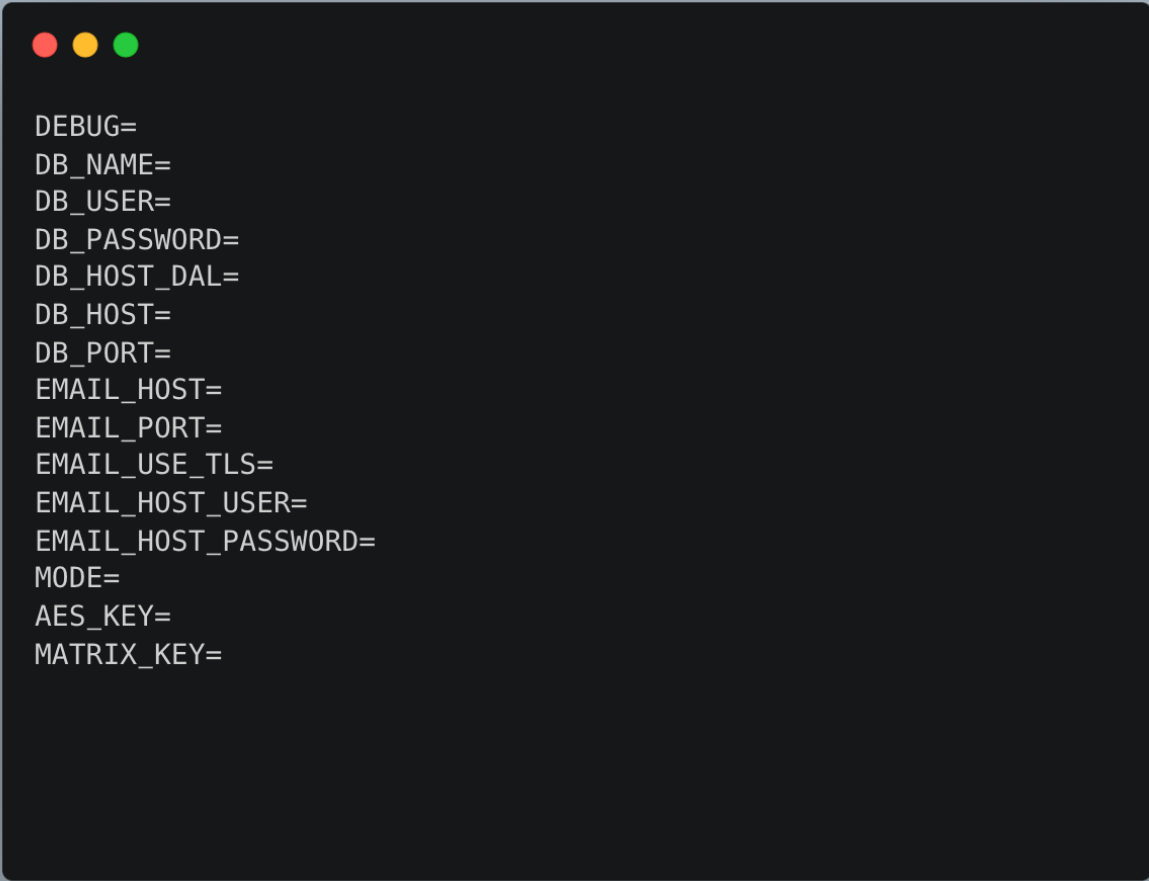
1. Activate virtual environment

```
$ virtualenv asdc-group5
$ source asdc-group5/bin/activate
```

1. Install the requirements

```
$ pip install -r requirements.txt
```

1. Create a new `.env` file with contents present in `.env.example`



```
DEBUG=  
DB_NAME=  
DB_USER=  
DB_PASSWORD=  
DB_HOST_DAL=  
DB_HOST=  
DB_PORT=  
EMAIL_HOST=  
EMAIL_PORT=  
EMAIL_USE_TLS=  
EMAIL_HOST_USER=  
EMAIL_HOST_PASSWORD=  
MODE=  
AES_KEY=  
MATRIX_KEY=
```

The env format should be like the parameters present in the file above.

```
$ nano password_vault_backend/.env
```

1. Add content from `.env.example` and paste it into `.env`. Make sure to keep this file in the correct path with no extra white spaces.
1. Run migrations from the root directory. This will populate your database with required tables and values.

```
$ python3 password_vault_backend/manage.py migrate
```

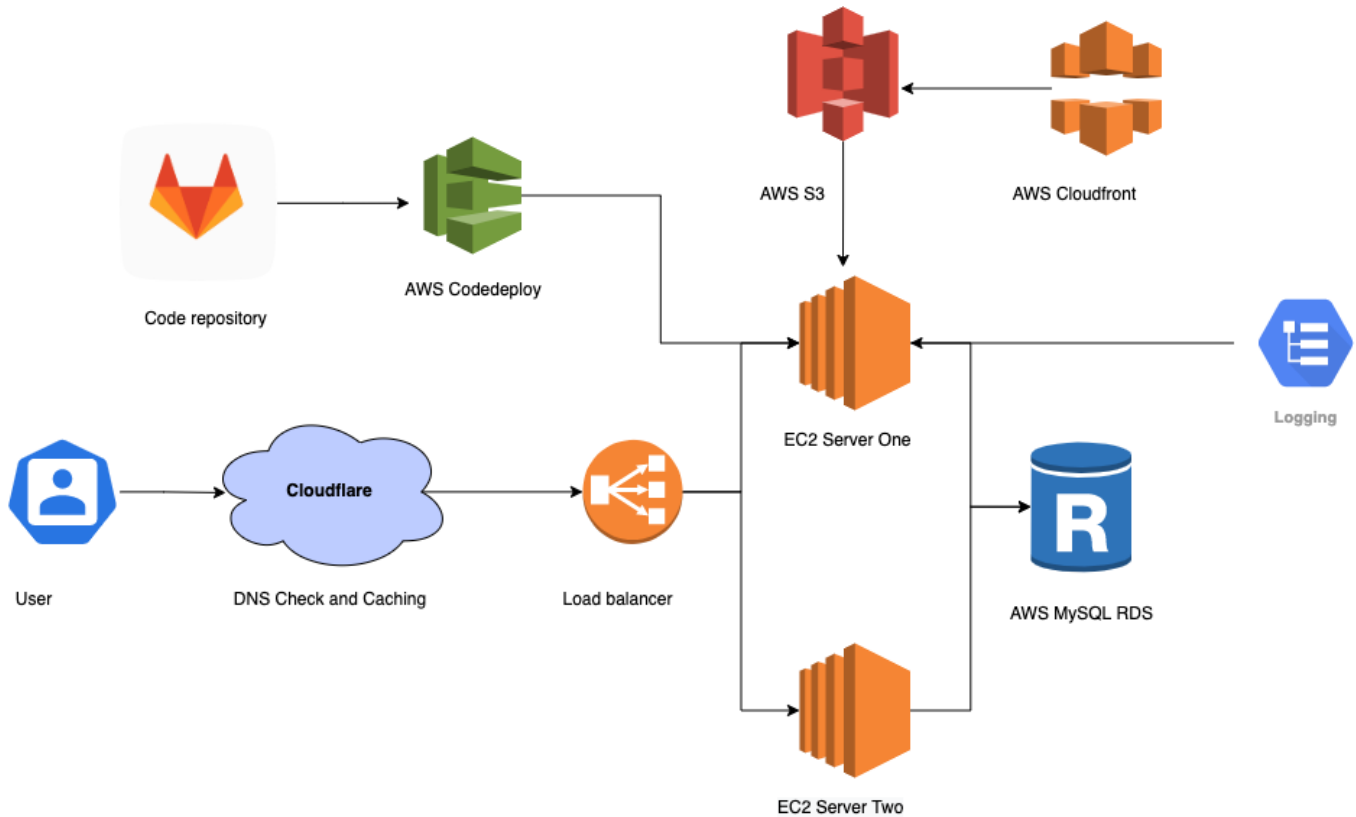
1. Finally, run the server with

```
$ python3 password_vault_backend/manage.py runserver
```

1. Open

127.0.0.1:8080 to view the API specifications.

Architecture



Deployment Instructions

Cloud platform used : Amazon Web Services

1. AWS Elastic Compute Cloud (EC2)
2. AWS Simple Secure Storage (S3)
3. AWS CloudDeploy
4. AWS Cloudformation
5. AWS Virtual Private Cloud (VPC)

Start with AWS Cloudformation template present in the deployment `scripts/deploy_to_aws.template` by adding it to the cloudformation runner [here](#).

Stacks

Stack details

Drifts

StackSets

Exports

Designer

▼ Registry

- Public extensions
- Activated extensions
- Publisher

Feedback

CloudFormation > Stacks > ASDC-Project

Stacks (1)

Filter by stack name

Active View nested

< 1 >

ASDC-Project
2022-03-06 21:42:32 UTC-0400
CREATE_COMPLETE

ASDC-Project

Delete Update Stack actions Create stack

Stack info Events Resources Outputs Parameters Template Change sets

Template

View in Designer

AWS::CloudFormation::Template
Parameters:
 AppKey:
 Type: String
 Description: Name for app. Will be used as tag.
 BucketName:
 AllowedPattern: ^[a-z0-9]*\$
 Type: String
 Description: Name for Bucket used for deployment. Only lowercase and numbers. Must be unique in AWS, otherwise will fail.
 Source2Ingress:
 Type: String
 Default: 0.0.0.0/0
 Description: Source IP address for ingress traffic. Must be a valid CIDR. Default value 0.0.0.0/0 makes EC2 open to world. For more security put your IP address ->your-ip/v32 e.g. 80.120.3.134/32
Mappings:
 RegionMap:
 us-east-1:
 AmazonLinux: ami-0dc2d3e4c0f9ebd18"
 eu-central-1:
 AmazonLinux: ami-00f2z7f6155d6d92c5"
Resources:
 S3Bucket:
 Type: AWS::S3::Bucket
 Properties:
 BucketName: !Ref BucketName
 VersioningConfiguration:
 Status: Enabled
VPC:
 Type: AWS::EC2::VPC
 Properties:
 CidrBlock: 10.0.0.0/16
 Tags:

Post that, you can navigate to the AWS CodeDeploy page by clicking [here](#). You can create a project with the configuration given below.

Developer Tools > CodeDeploy > Deployments > d-4DMD9I3SG

d-4DMD9I3SG

Deployment status

Installing application on your instances

1 of 1 instances updated ✔ Succeeded 100%

Deployment details

| | | |
|---|--|--|
| Application myApp | Deployment ID d-4DMD9I3SG | Status ✔ Succeeded |
| Deployment configuration CodeDeployDefault.AllAtOnce | Deployment group asdc-group-5-DeploymentGroup | Initiated by User action |
| Deployment description - | | |

Revision details

| | | |
|--|--------------------------------|---|
| Revision location s3://group5asdc/artifacts.zip | Revision created 8 days ago | Revision description Application revision registered by Deployment ID: d-63OILEXMG |
|--|--------------------------------|---|

Deployment lifecycle events

< 1 >

| Instance ID | Duration | Status | Most recent event | Events | Start time | End time |
|-------------------------------------|-----------|--|-------------------|-----------------------------|---------------------------------|---------------------------------|
| i-0023c834092bb61e8 | 8 seconds | ✔ Succeeded | ValidateService | View events | Mar 31, 2022 5:29 PM (UTC-3:00) | Mar 31, 2022 5:30 PM (UTC-3:00) |

EC2 Dashboard :-

Filter by tags and attributes or search by keyword

| Name | Instance ID | Instance Type | Availability Zone | Instance State | Status Checks | Alarm Status | Public DNS (IPv4) | IPv4 Public IP | IPv6 IPs | Key Name | Monitoring | Launch Time |
|------------------------|----------------------|---------------|-------------------|--|---|--------------|-------------------------|------------------------------|----------|-----------|------------|---------------------------|
| SonarQube | i-0b46ad86e20dd00... | t2.medium | us-east-1a | ✔ running | ✔ 2/2 checks ... | None | ec2-52-90-114-61.com... | 52.90.114.61 | - | sonarqube | disabled | March 22, 2022 at 6:18:08 |
| asdc-group-5-PublicEC2 | i-0023c834092bb61e8 | t2.micro | us-east-1b | ✔ running | ✔ 2/2 checks ... | None | | 3.229.254.64 | - | | disabled | March 27, 2022 at 9:12:50 |

Instance: [i-0023c834092bb61e8 \(asdc-group-5-PublicEC2\)](#) Elastic IP: [3.229.254.64](#)

| | | | |
|----------------|---------------------|-------------------|------------------------------|
| Instance ID | i-0023c834092bb61e8 | Public DNS (IPv4) | - |
| Instance state | running | IPv4 Public IP | 3.229.254.64 |
| Instance type | t2.micro | IPv6 IPs | - |

Once the deployment succeeds, you can open the URL in the web browser.

If you want to change the location of deployment or add a new app, you can modify the app name in the gitlab yml file located in the root directory. In the screenshot below, Deployment group and the app Name justifies the required stack.

```

deploy_to_aws:
  stage: deploy
  script:
    - aws deploy push --application-name myApp --s3-location s3://group5asdc/artifacts.zip
    - aws deploy create-deployment --application-name myApp --deployment-group-name asdc-group-5-DeploymentGroup --s3-location bucket=group5asdc,bundleType=zip,key=artifacts.zip
  artifacts:
    paths:
      - password_vault_backend/*
  
```

Deploying the front-end React Application

1. You can navigate to the directory by

```
$ cd password_vault_fronend
```

1. You can run the node server that triggers the pm2 script by

```
$ npm start
```

1. Once you verify that app is building without errors you can deploy it using heroku command line app

```
$ heroku login  
$ heroku create  
$ git add .  
$ git commit -m "Adding password vault frontend to heroku"  
$ git push heroku master  
$ heroku open
```

1. To add static web server you can add the ps variable by

```
$ heroku ps:scale web=1
```

Setuping LogDNA for cloud logging

Create an account [here](#). Get API keys from the App [panel](#). Once you integrate it with the app, the logs should flow to the dashboard. More details about module can be found [here](#).

Find a View

Everything

Views

Views are a great way to bookmark frequent searches or filters. To create a view, search and filter your logs, then click on the view menu.

Everything

Filters

Sources

Apps

Levels

1 lines

Timeline

Time scale: 60 minutes (default)

4/4 14:34:30 - 4/4 15:34:30

Apr 4

14:40:30

14:46:30

14:52:30

14:58:30

15:04:30

15:10:30

15:16:30

15:22:30

15:28:30

15:34:30

Apr 3 22:15:37 password_vault Aes INFO E6ZlpvHth5Y0kbn7k0uMSXVF30A+8XFFpHnvbjN8J0uz8L0ae!KgS144cFpU/pCgd6Qr1YfRmMlqfF3Dcbkng==

Apr 3 22:17:59 password_vault Aes INFO Logging the text that needs to be decrypted

Apr 3 22:17:59 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 3 22:17:59 password_vault Aes INFO Logging the text that needs to be decrypted

Apr 3 22:17:59 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 3 22:17:59 password_vault Aes INFO Logging the text that needs to be decrypted

Apr 3 22:17:59 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 3 22:40:19 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 3 22:40:19 password_vault Aes INFO Logging the text that needs to be encrypted

Apr 3 22:40:19 password_vault Aes INFO v6j730LsntDKK/i3p+BanIgaKZ+GybrUlw1XfVgT3NB+ddC8/jvP1haXyrIAAszpRuvFdWntWmyo2KRAnHNBQ==

Apr 3 22:42:49 password_vault Aes INFO Logging the text that needs to be decrypted

Apr 3 22:42:49 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 3 22:42:49 password_vault Aes INFO Logging the text that needs to be decrypted

Apr 3 22:42:49 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 3 22:42:49 password_vault Aes INFO Logging the text that needs to be decrypted

Apr 3 22:42:49 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 4 04:46:06 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 4 04:46:06 password_vault Aes INFO Logging the text that needs to be encrypted

Apr 4 04:46:06 password_vault Aes INFO vp7Z0Hkpvh6H1K0CXn1Z5LS082z/tdIKZ6015UyVep9ZqXUZV5KNPQUcJAGCBM4+0UqeEGIZQT+RrcSaqQ3P0==

Apr 4 04:46:36 password_vault Aes INFO Logging the text that needs to be decrypted

Apr 4 04:46:36 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 4 04:46:36 password_vault Aes INFO Logging the text that needs to be decrypted

Apr 4 04:46:36 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 4 04:46:36 password_vault Aes INFO Logging the text that needs to be decrypted

Apr 4 04:46:36 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 4 11:06:17 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 4 11:06:17 password_vault Aes INFO Logging the text that needs to be encrypted

Apr 4 11:06:17 password_vault Aes INFO g1dUkRuG3cdnlyQu5T/2rGMyz5JqNTaq50sDtwMjPS+syPlxETVPUVFCpKd/NyoJgsVfndyjb9dkND1/T5ow==

Apr 4 11:06:19 password_vault Aes INFO Logging the text that needs to be decrypted

Apr 4 11:06:19 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 4 11:06:19 password_vault Aes INFO Logging the text that needs to be decrypted

Apr 4 11:06:19 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 4 11:06:19 password_vault Aes INFO Logging the text that needs to be decrypted

Apr 4 11:06:19 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 4 11:07:21 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 4 11:07:21 password_vault Aes INFO Logging the text that needs to be encrypted

Apr 4 11:07:21 password_vault Aes INFO 8W8xKVTk2J00Kgyo4vndHsxtTdQ8Np8/GwsuF18H+HntkR5m9jH04bK15LXQc6NLsmw17sKSTLT14vCGJ==

Apr 4 11:07:23 password_vault Aes INFO Logging the text that needs to be decrypted

Apr 4 11:07:23 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 4 11:07:23 password_vault Aes INFO Logging the text that needs to be decrypted

Apr 4 11:07:23 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 4 11:07:23 password_vault Aes INFO Logging the text that needs to be decrypted

Apr 4 11:07:23 password_vault Aes INFO Knock Knock! Encrypt this text please

Apr 4 11:53:15 live default DEBU User with coupon code PHARMZV187U9EASY entered [object Object]

Apr 4 15:23:52 live default DEBU User with coupon code PHARMZV187U9EASY entered [object Object]

Search...

Jump to timeframe

LIVE

Log PDF

CI pipeline implemented that runs test cases

Total test cases covered : 52

It includes combination of Unit Tests and Integration Tests.

GitLab

Group-5

- Project information
- Repository
- Issues 1
- Merge requests 0
- CI/CD
 - Pipelines
 - Editor
 - Jobs
 - Schedules
 - Test Cases
- Security & Compliance
- Deployments
- Monitor
- Infrastructure
- Packages & Registries
- Analytics
- Wiki
- Snippets
- Settings

Search GitLab

```
lclient-2.1.0 netifaces-0.10.4 numpy-1.22.3 pandas-1.4.2 pdfkit-1.0.0 pycryptodome-3.14.1 python-dateutil-2.8.2 python3-openid-3.2.0 requests-2.18.4 requests-file-1.5.1 requests-oauthlib-1.3.0 social-auth-app-django-4.0.0 social-auth-core-4.1.0 sqlparse-0.4.2 tldextract-3.2.0 urllib3-1.22
4228 $ cd password_vault_backend
4229 $ python3 manage.py test
4230 35d1a5fe6ae1072a31a9a9448ab7f5a5
4231 Creating test database for alias 'default'...
4232 System check identified some issues:
4233 WARNINGS:
4234 ? (mysql.W002) MySQL Strict Mode is not set for database connection 'default'
4235 HINT: MySQL's Strict Mode fixes many data integrity problems in MySQL, such as data truncation
upon insertion, by escalating warnings into errors. It is strongly recommended you activate it. See: https://docs.djangoproject.com/en/3.2/ref/databases/#mysql-strict-mode
4236 System check identified 1 issue (0 silenced).
4237 .....
4238 -----
4239 Ran 52 tests in 10.712s
4240 OK
4241 Destroying test database for alias 'default'...
4242 $ echo GRANT ALL ON *.* TO ${MYSQL_USER}; | mysql -u root --password=${MYSQL_ROOT_PASSWORD} -h m
ysql
4243 mysql: [Warning] Using a password on the command line interface can be insecure.
4245 Running after_script 00:04
4247 Saving cache 00:06
4248 Creating cache default-5...
4249 WARNING: ~/.cache/pip/: no matching files
4250 Archive is up to date!
4251 Created cache
4253 Uploading artifacts for successful job 00:04
4255 Job succeeded
```

django-tests

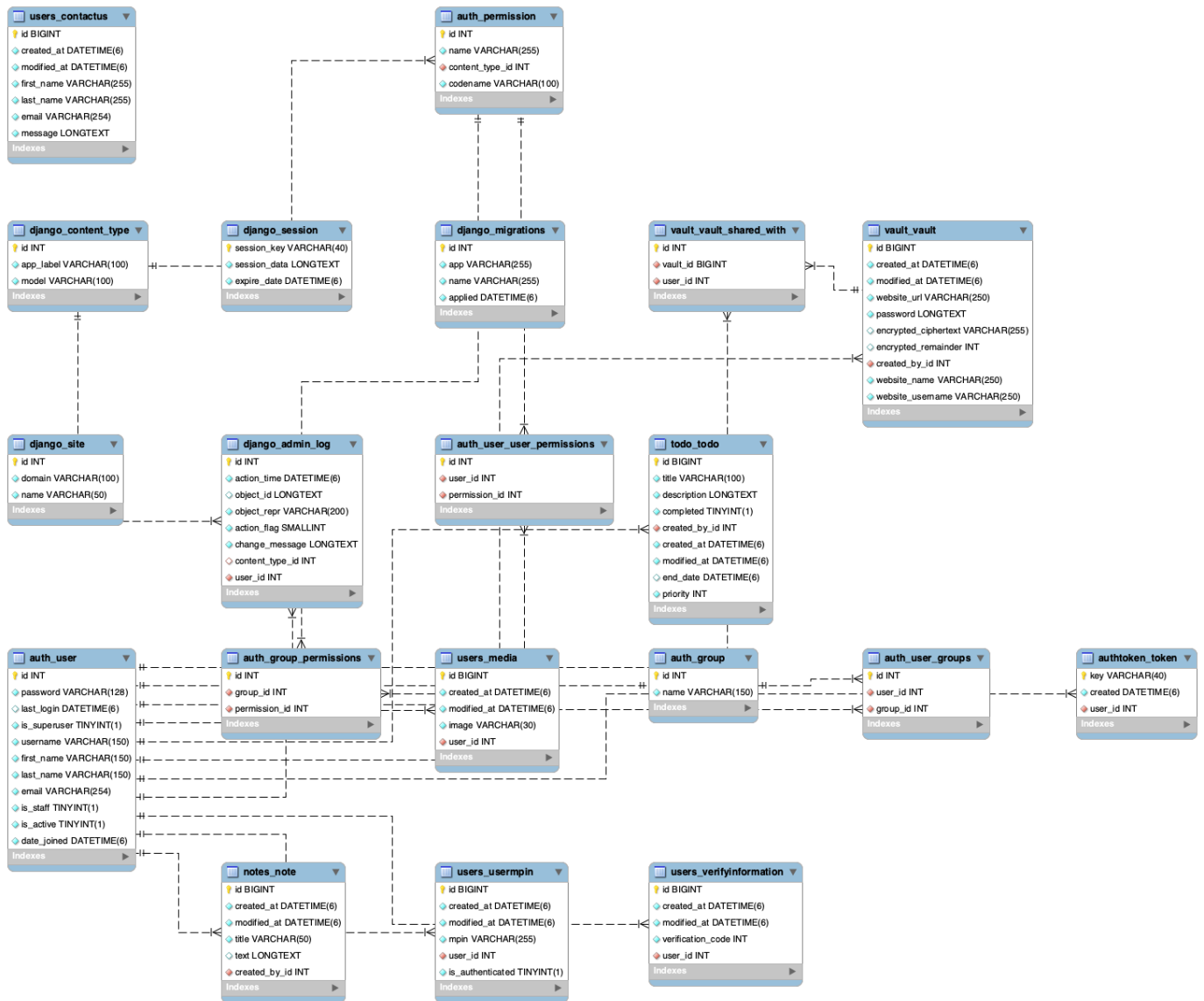
Duration: 37 minutes 28 seconds
Finished: 14 hours ago
Timeout: 1h (from project)
Runner: #32 (ce9tXy29) autoscale-runner.cs.dal.ca

Commit 7c608a4d
Merge branch 'integration_tests' into 'master'

Pipeline #153724 for master
test

→ django-tests
sonarqube-check

Database ERD :



Quality stage implemented where SonarQube is integrated in the CI

Total stages during CI/CD - 4

Merge branch 'integration_tests' into 'master'

Added integration test for Signup and Login functionality

See merge request !27

🕒 4 jobs for `master` in 57 minutes and 17 seconds (queued for 4 seconds)

🚩 latest

🔗 7c608a4d 📄

🔗 No related merge requests found.

Pipeline Needs Jobs 4 Tests 0

Build

✓ migrations ↻

Test

✓ django-tests ↻

✓ sonarqube-check ↻

Deploy

✓ deploy_to_aws ↻

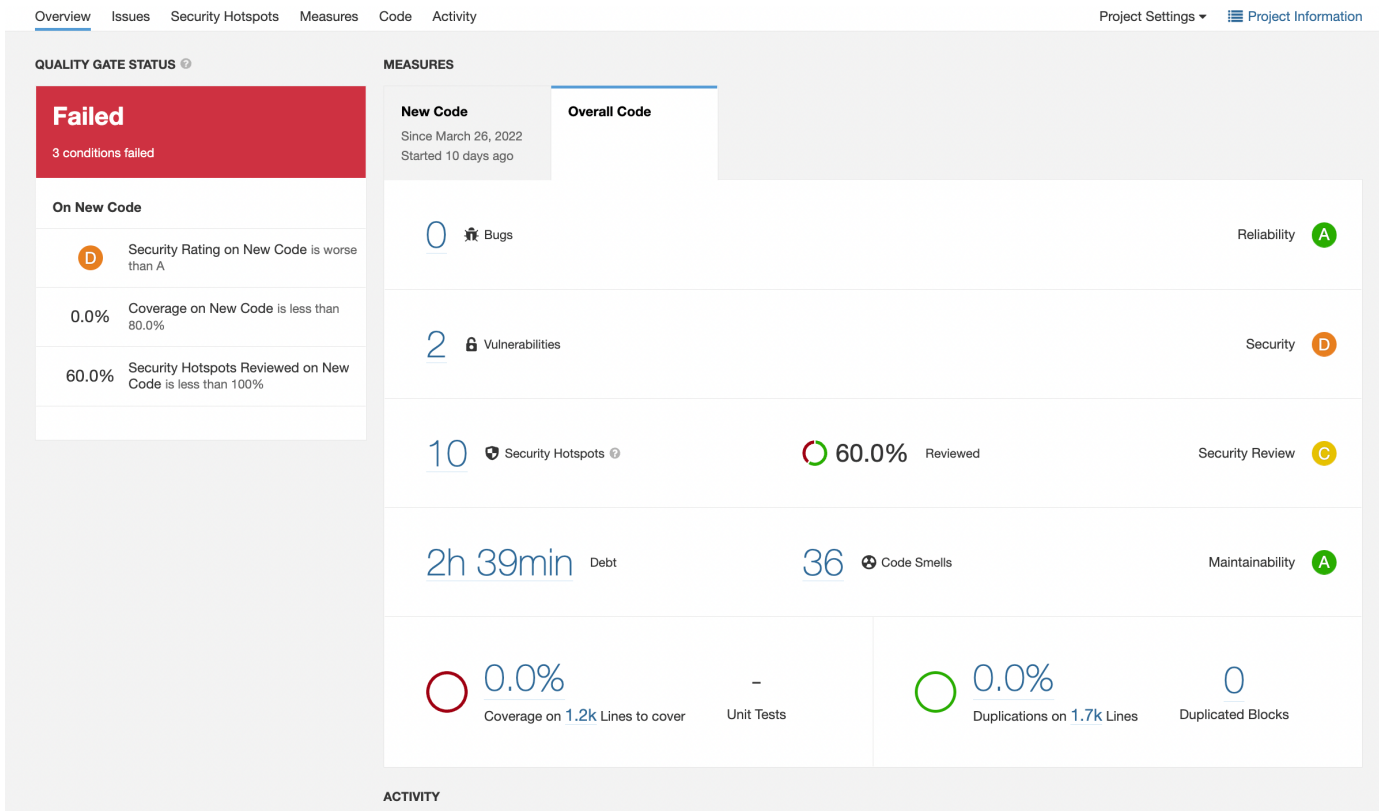
SonarQube pipeline -

The screenshot displays the GitLab CI/CD interface for a pipeline. The left sidebar shows the project structure with 'Jobs' selected. The main panel shows the execution log for the 'sonarqube-check' job. The log includes various informational messages from the SonarQube sensors, such as 'Sensor VB.NET Properties [vbnets] (done) | time=1ms', 'Run sensors on project', 'Sensor Zero Coverage Sensor', 'SCM Publisher SCM provider for this project is: git', 'SCM Publisher 1 source file to be analyzed', 'SCM Publisher 1/1 source file have been analyzed (done) | time=486ms', 'CPD Executor 27 files had no CPD blocks', 'CPD Executor Calculating CPD for 53 files', 'CPD Executor CPD calculation finished (done) | time=65ms', 'Analysis report generated in 237ms, dir size=277 KB', 'Analysis report compressed in 496ms, zip size=166 KB', 'Analysis report uploaded in 265ms', 'ANALYSIS SUCCESSFUL, you can browse http://52.98.114.61/dashboard?id=ASDC-Production', 'Note that you will be able to access the updated dashboard once the server has processed the submitted analysis report', 'More about the report processing at http://52.98.114.61/api/ce/task?id=AX_3UBKMDjNRMrPI822r', 'Analysis total time: 21.455 s', 'EXECUTION SUCCESS', 'Total time: 24.828s', and 'Final Memory: 7M/38M'. The log also shows the execution of 'Running after_script' and 'Saving cache' steps. The right sidebar shows the job details for 'sonarqube-check', including its duration (4 minutes 4 seconds), finish time (14 hours ago), timeout (1h), runner (ce0tXy29 autoscale-runner.cs.dal.ca), commit (7c608a4d), and merge request (!27). The job is part of Pipeline #153724 for master.

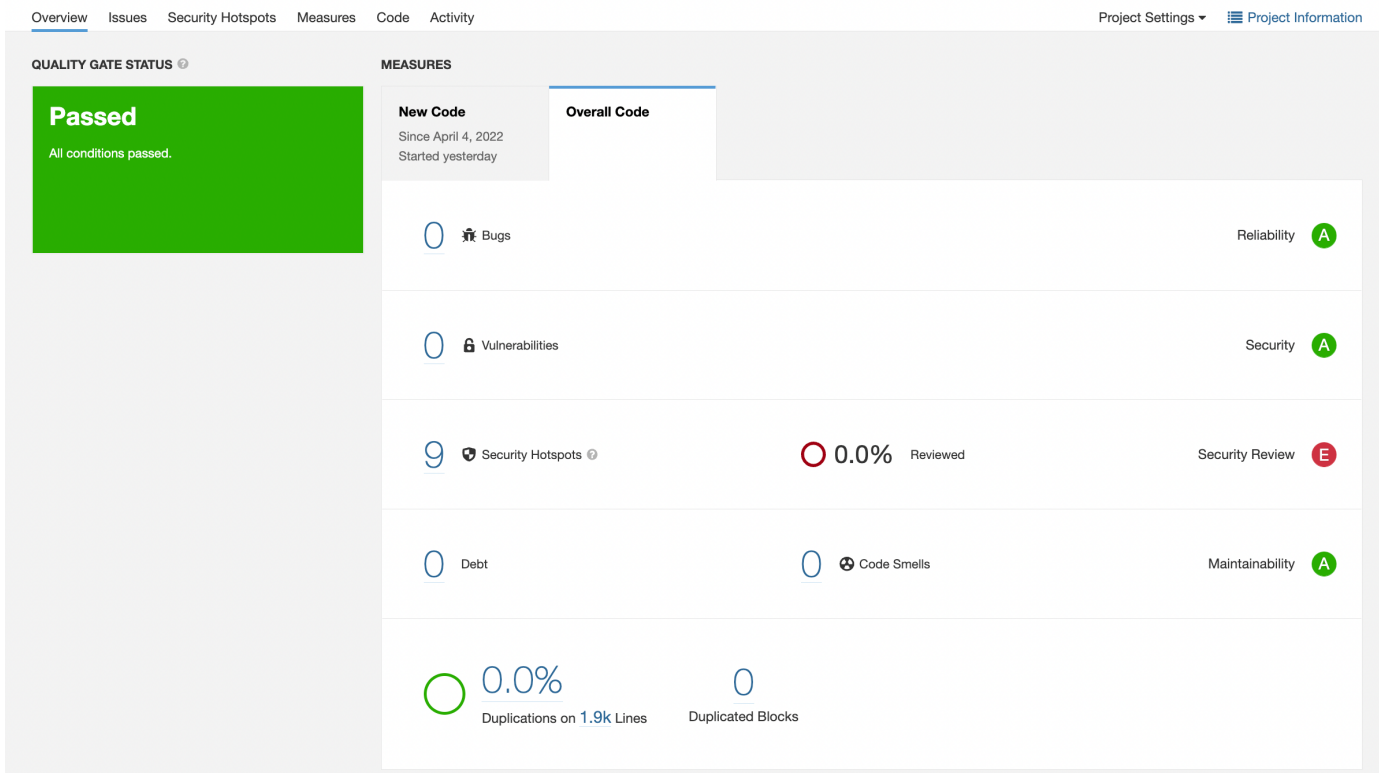
```
124 INFO: Sensor VB.NET Properties [vbnets] (done) | time=1ms
125 INFO: ----- Run sensors on project
126 INFO: Sensor Zero Coverage Sensor
127 INFO: Sensor Zero Coverage Sensor (done) | time=48ms
128 INFO: SCM Publisher SCM provider for this project is: git
129 INFO: SCM Publisher 1 source file to be analyzed
130 INFO: SCM Publisher 1/1 source file have been analyzed (done) | time=486ms
131 INFO: CPD Executor 27 files had no CPD blocks
132 INFO: CPD Executor Calculating CPD for 53 files
133 INFO: CPD Executor CPD calculation finished (done) | time=65ms
134 INFO: Analysis report generated in 237ms, dir size=277 KB
135 INFO: Analysis report compressed in 496ms, zip size=166 KB
136 INFO: Analysis report uploaded in 265ms
137 INFO: ANALYSIS SUCCESSFUL, you can browse http://52.98.114.61/dashboard?id=ASDC-Production
138 INFO: Note that you will be able to access the updated dashboard once the server has processed the submitted analysis report
139 INFO: More about the report processing at http://52.98.114.61/api/ce/task?id=AX_3UBKMDjNRMrPI822r
140 INFO: Analysis total time: 21.455 s
141 INFO: -----
142 INFO: EXECUTION SUCCESS
143 INFO: -----
144 INFO: Total time: 24.828s
145 INFO: Final Memory: 7M/38M
146 INFO: -----
148 Running after_script
150 Saving cache
151 Creating cache sonarqube-check-5...
152 .sonar/cache: found 49 matching files
153 Archive is up to date!
154 Created cache
```

SonarQube smells -

Before :



After :



Overall Coverage -

| Module ↕ | statements | missing | excluded | coverage |
|---|------------|---------|----------|----------|
| /Users/ayush/PycharmProjects/group5/password_vault_backend/core/__init__.py | 2 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/core/helpers.py | 14 | 5 | 0 | 64% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/core/migrations/__init__.py | 0 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/core/models.py | 6 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/core/permissions.py | 9 | 5 | 0 | 44% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/core/tests.py | 22 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/core/views.py | 22 | 8 | 0 | 64% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/manage.py | 13 | 6 | 0 | 54% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/notes/__init__.py | 0 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/notes/admin.py | 1 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/notes/apps.py | 4 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/notes/migrations/__init__.py | 0 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/notes/migrations/0001_initial.py | 7 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/notes/migrations/0002_alter_note_text.py | 4 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/notes/models.py | 7 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/notes/serializers.py | 10 | 3 | 0 | 70% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/notes/tests.py | 21 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/notes/urls.py | 8 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/notes/views.py | 10 | 1 | 0 | 90% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/password_vault_backend/__init__.py | 0 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/password_vault_backend/settings.py | 43 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/password_vault_backend/urls.py | 8 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/todo/__init__.py | 0 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/todo/admin.py | 1 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/todo/apps.py | 4 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/todo/migrations/__init__.py | 0 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/todo/migrations/0001_initial.py | 7 | 0 | 0 | 100% |
| /Users/ayush/PycharmProjects/group5/password_vault_backend/todo/migrations/0002_auto_20220327_0535.py | 5 | 0 | 0 | 100% |