

# Python AI assistant project

SE489

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Version History			
Date	Version	Description	Supervisor
3/18/23	1	-	-
1/5/23	2	-	-

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# Summary

## Notes

No notes have been added  
this far!

## Milestones

### Phase 1

In this phase the brainstorming of the whole system where implemented and the flow of the system is being initiated and enhancement has been decided along with the pipeline

### Phase 2

In this phase the pipeline we created as well as proper testing and the code has been tested to be automated pushed to production

### Phase 3

This phase where the projects come to its conclusion, another cycle has been generated to form away of assurance that everything is working fine

# Phase 1

# Introduction of Python Ai assistant project

## Why this project

AI assistants have revolutionized the way we interact with technology. These intelligent digital helpers use natural language processing, machine learning, and other sophisticated algorithms to understand and respond to our requests. They can help us with a range of tasks, from scheduling appointments and managing our to-do lists to answering our questions and even writing content. With their ability to learn and adapt to our preferences, AI assistants are becoming an increasingly valuable tool for enhancing our productivity, efficiency, and overall quality of life in the modern era

## About

Jarvis is a voice commanding assistant service in Python 3.8 It can recognize human speech, talk to users and execute basic commands.

The Requirements to run the project :

Operation system: Ubuntu 20.04 (Focal Fossa)

Python Version: 3.8.x

*>>Along with other dependencies are provided in the file of the repository*

The application provides skills that can be edited and added from the source code, the skills or its called the “assistant skills” can help now the limitations of “Jarvis” and what can and can’t you ask it. Example of such:

- Opens a web page (e.g 'Jarvis open youtube')
- Play music in Youtube (e.g 'Jarvis play mozart')
- Increase/decrease the speakers master volume (also can set max/mute speakers volume) \*\* (e.g 'Jarvis volume up!')
- Opens libreoffice suite applications (calc, writer, impress) (e.g 'Jarvis open calc')

- Tells about something, by searching on the internet (e.g 'Jarvis tells me about oranges')
- Tells the weather for a place (e.g 'Jarvis tell\_the\_skills me the weather in London')

### Github link

<[https://github.com/OUF5/Python-ai-assistant/tree/DevOps\\_Test](https://github.com/OUF5/Python-ai-assistant/tree/DevOps_Test)>

## Change History

The changing monitoring is done using the Google Docs History  
And monitoring the version control using Git

## Team Structure:

- Software developer/tester: Mohammed Ibnouf.
- Quality Assurance: Ali Basodan.
- Release Manager: Almuhammad Alotaibi.

## Overview

Jarvis is a command assistant service in Python that executes commands given by the user. It uses third-party APIs for web information search, weather forecasting, etc....

## Assistant Features

- Asynchronous command execution.
- Answers general questions (via call Wolfram API), e.g ('Jarvis tell me the highest building').
- Configurable assistant name.
- Log preview in the console.
- Keeps commands history and learned skills in MongoDB.'.

## Enhancements and Future Plans

In the description of the project in GitHub, it says that it supports two user input modes (texts and speech). But when we went through the code, we found out that the speech functionality is not completed. So as an enhancement to the assistant we will modify the input speech functionality, this might disturb the current development as it requires modification insight in the source code.

## Communication and Proposed Pipeline

## Communication Medium Used

Our group decided to use **WhatsApp** group chats as the main communication medium since it provides the fastest and easiest way for instant messaging and for general availability. Additionally, **Google Meet** will be the designated online video conference platform used in case group members needed to showcase or present work for feedback and general discussions.

## Planned Pipeline

The following are the tools that will be used for the project's pipeline:

### Code phase:

#### **Visual Studio Code**

Visual Studio Code is lightweight and versatile and will provide major extensibility for our use case. Furthermore, VCS comes integrated with Git as well which will make it easier to use our tools of version control in the same environment.

### Version Control:

#### **Git and Github**

Our group will be using Git and Github for version control and collaboration. Since the project requires group work, Git will help us to track changes that each member has made, and review work done and eventually commit to our central repository. Github will be used to store our work online and facilitate collaboration by sharing the same codebase.

### Testing phase:

#### **PyUnit**

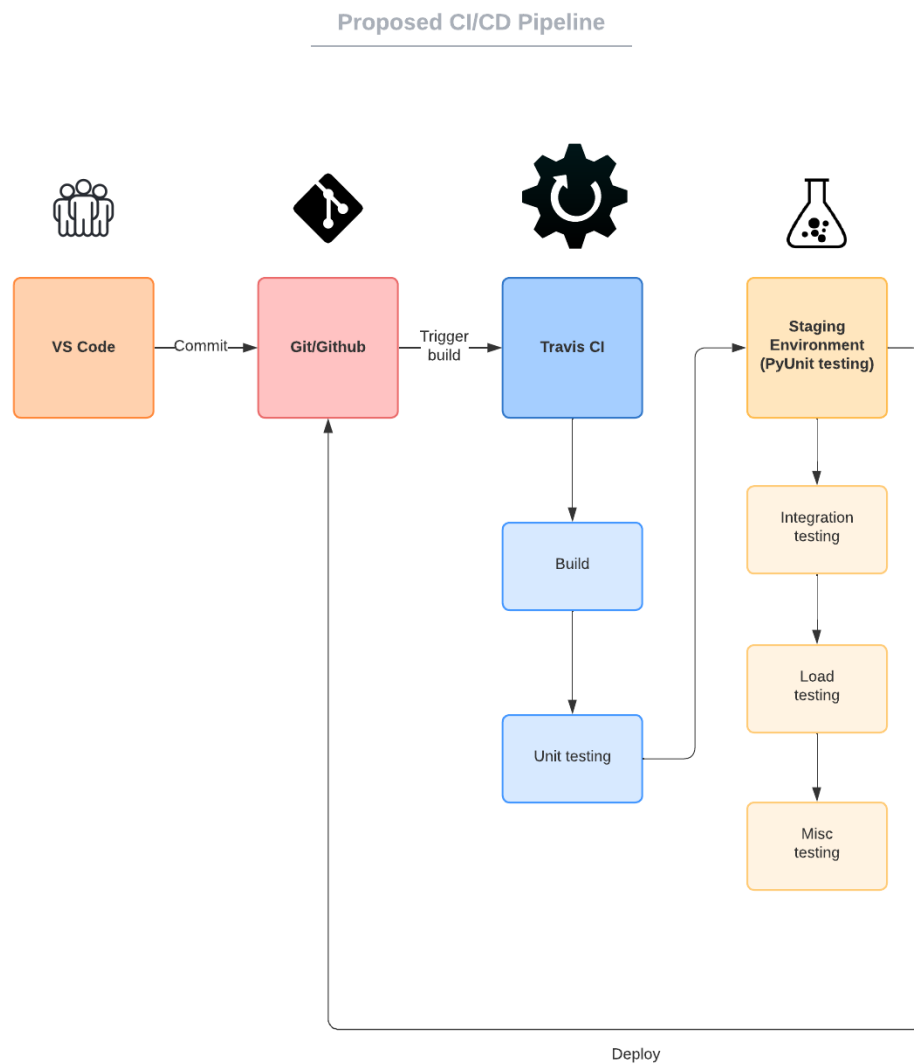
The PyUnit framework will be used in our project for testing since it provides extensive utilities that will help us detect and minimize code bugs and errors.



## Continuous Integration and Continuous Deployment (CI/CD):

### **Travis**

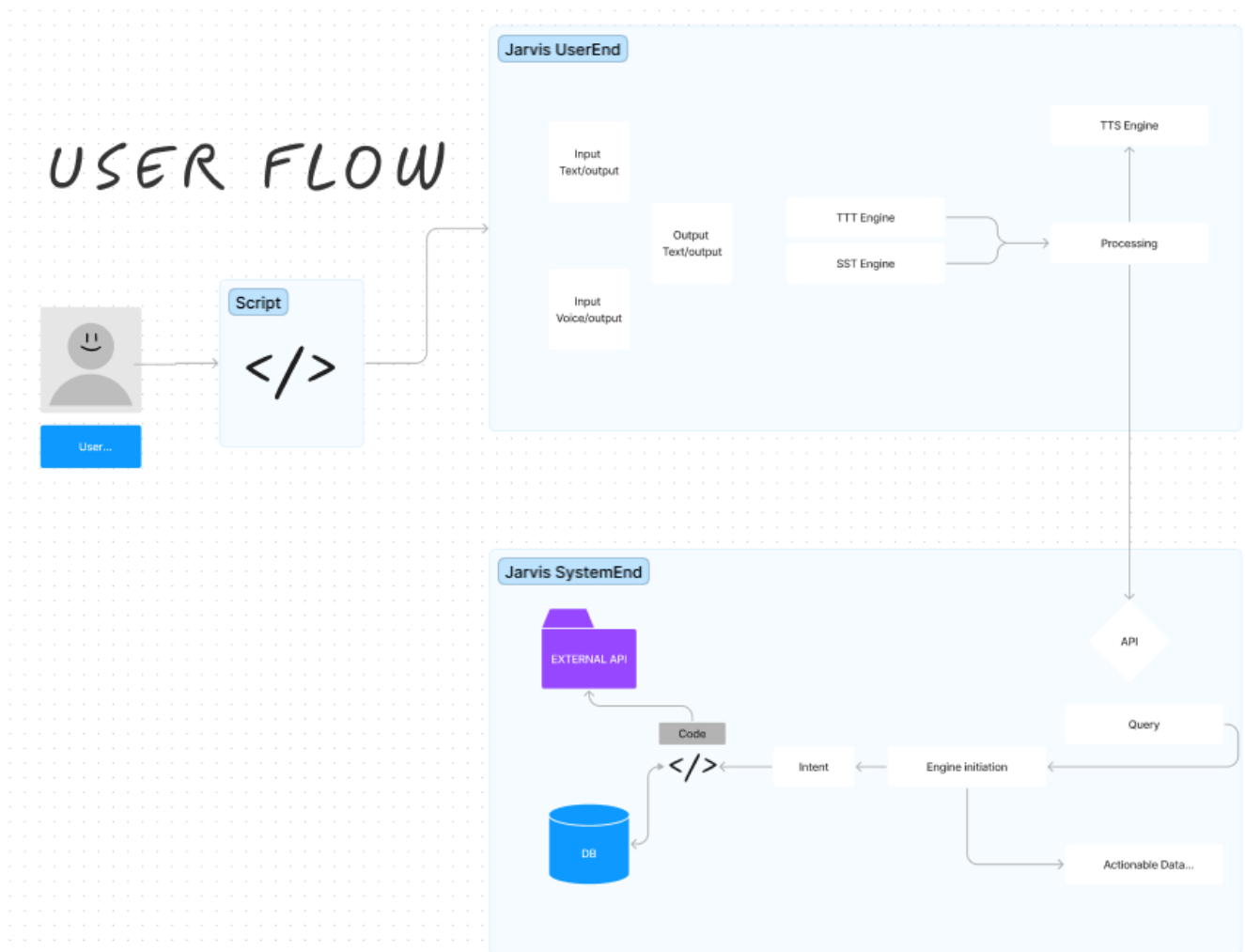
Travis is already being used by the original project, so we decided to keep the same tool and not force other similar tools such as Jenkins. Travis provides similar capabilities to Jenkins and can be integrated with other tools for flexibility. We will be using Travis for our CI/CD needs as it allows us to customize our workflow for automated testing, building, and delivery. Additionally, Travis CI offers continuous deployment into GitHub for our case.



CI/CD Pipeline diagram

## Architecture and Design

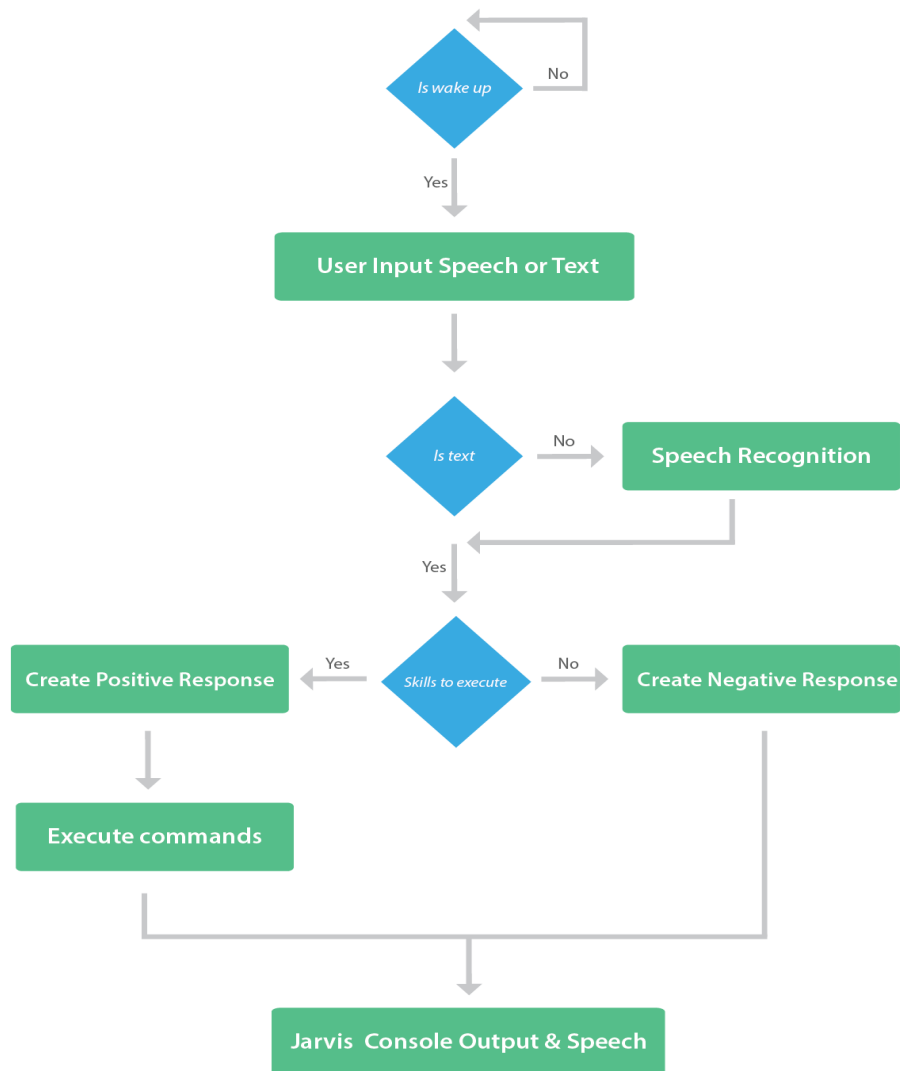
### User Flow



As it shows in this user flow diagram the user will input a command <Text,voice> the output will generated using engines <TEXT TO TEXT, SPEECH TO TEXT, TEXT TO

SPEECH> using provided API's like Wolfram API to identify of command in the Database.

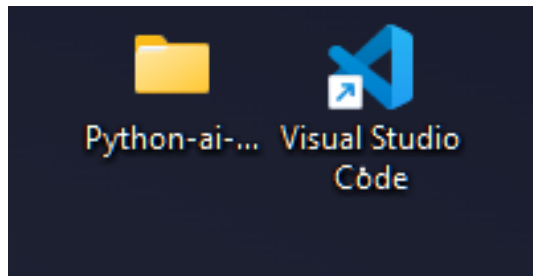
## Decision model



This is the decision model which represents the full overview of how the application works and with respect to the commands how it does function.

# Program Execution

## Screenshots of running version



The project has been cloned from the GitHub link to our GitHub repository and local device to complete the project using VSCode

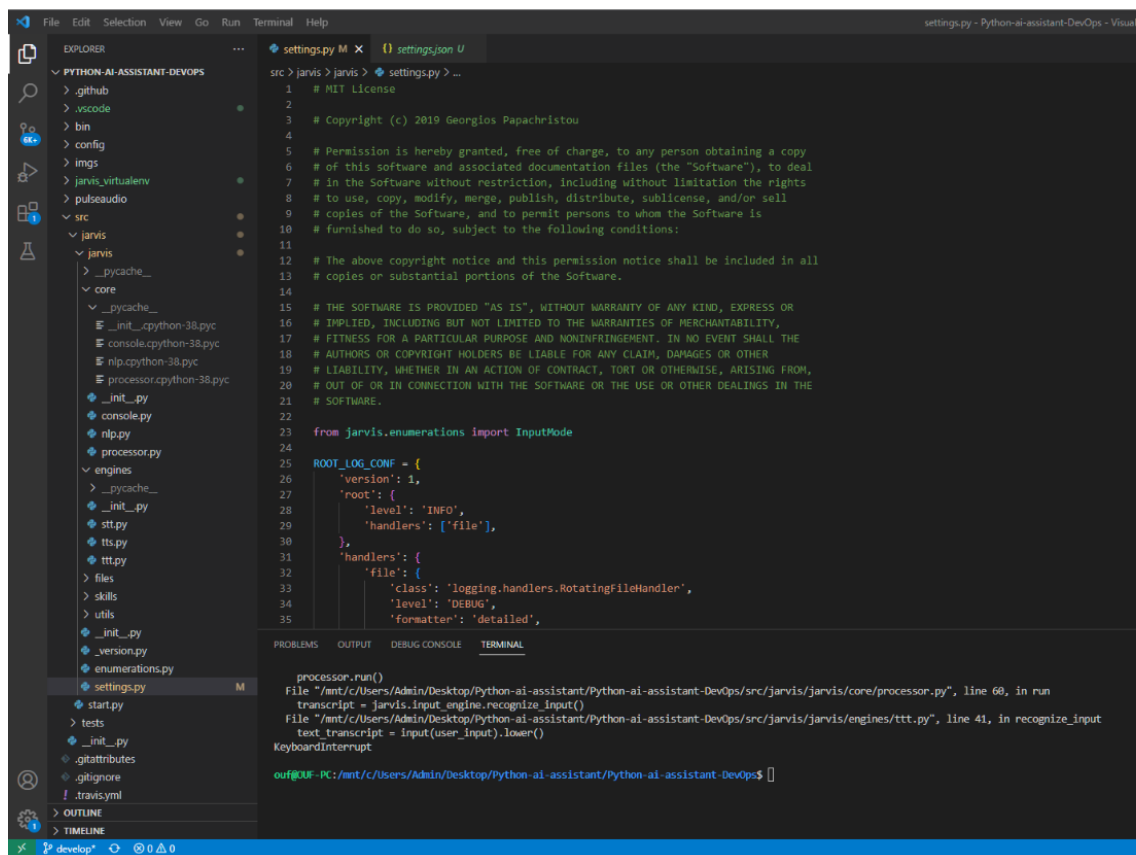
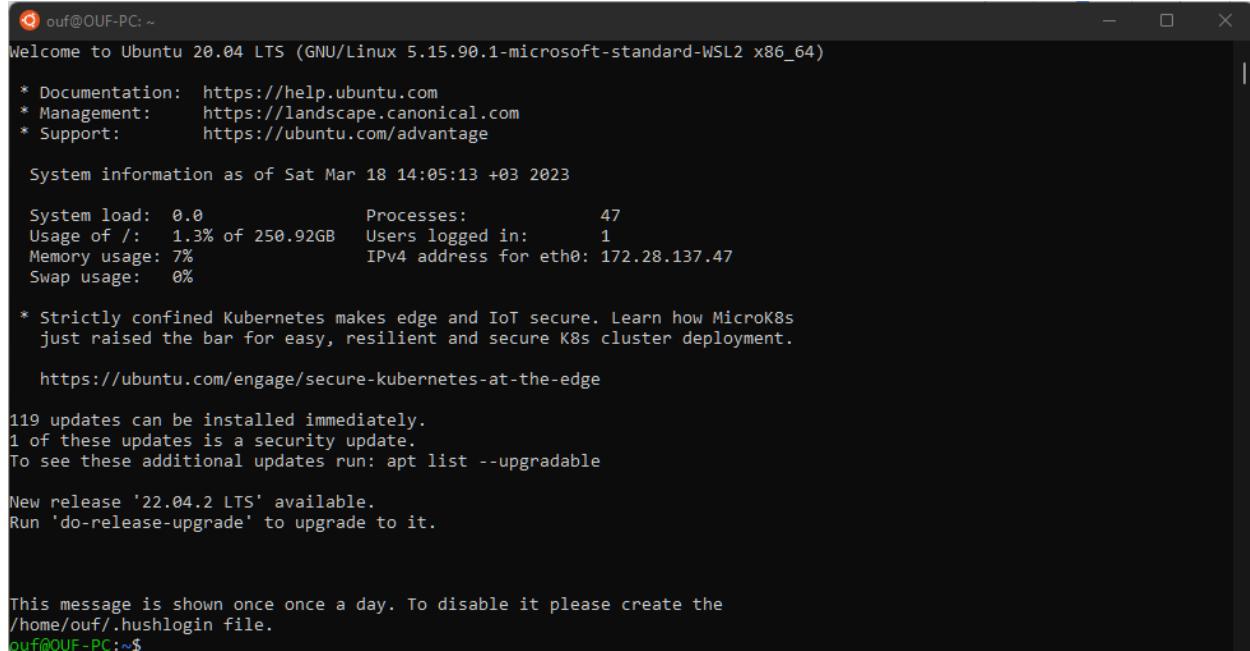
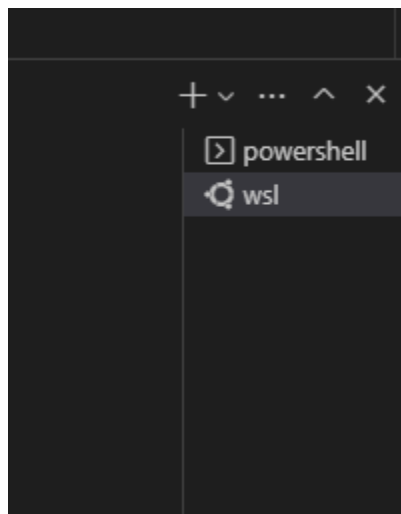


Photo of the running version

**Consideration point:** the program only runs in Ubuntu so the virtual machine had to be implemented but due to its hardware usage for unnecessary purposes, we decided to use WSL second version to run bash on.



```
ouf@OUF-PC: ~  
Welcome to Ubuntu 20.04 LTS (GNU/Linux 5.15.90.1-microsoft-standard-WSL2 x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:        https://ubuntu.com/advantage  
  
System information as of Sat Mar 18 14:05:13 +03 2023  
  
System load:  0.0          Processes:      47  
Usage of /:   1.3% of 250.92GB  Users logged in: 1  
Memory usage: 7%          IPv4 address for eth0: 172.28.137.47  
Swap usage:   0%  
  
* Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s  
  just raised the bar for easy, resilient and secure K8s cluster deployment.  
  
  https://ubuntu.com/engage/secure-kubernetes-at-the-edge  
  
119 updates can be installed immediately.  
1 of these updates is a security update.  
To see these additional updates run: apt list --upgradable  
  
New release '22.04.2 LTS' available.  
Run 'do-release-upgrade' to upgrade to it.  
  
This message is shown once once a day. To disable it please create the  
/home/ouf/.hushlogin file.  
ouf@OUF-PC:~$
```



**Running Terminal in VsCode <WSL>**

```

src > jarvis > jarvis > settings.py > ...
48
49
50
51 Default General assistant settings
52 These values load in the MongoDB as the default values.
53 You can change the values when you start the assistant.
54 The application will ask you 'Do you want to configure it again (y/n)'
55 I you write yes you can change the following settings or you can change the following default values.
56
57 Keys Description:

JARVIS

- Voice Assistant Platform v1.0.0-beta -
NOTE: CTRL + C If you want to Quit.

===== GENERAL INFO =====
RESPONSE IN SPEECH: NOT ENABLED
INPUT MODE: TEXT
===== SYSTEM =====
RAM USAGE: 0.15 GB
===== LOG -/var/log/jarvis.log (Total Line
2023-03-18 14:09:14,259 - root - INFO - Wait a second for startup checks..
2023-03-18 14:09:14,357 - root - INFO - Checking internet connection..
2023-03-18 14:09:15,111 - root - INFO - Internet connection passed!
2023-03-18 14:09:15,176 - root - INFO - Application started
2023-03-18 14:09:15,225 - root - INFO - I'm ready! Say something :-)
2023-03-18 14:09:51,668 - root - INFO - Unclassified user command..
2023-03-18 14:09:51,707 - root - INFO - Executing skill open_website_in_browser

```

Running Version of the software: the program is running and taking input as a text using the **Text To Text Engine (TTT)**

```

settings.py - Python-ai-assistant-DevOps - Visual Studio Code
src > jarvis > jarvis > settings.py > ...
48
49
50
51 Default General assistant settings
52 These values load in the MongoDB as the default values.
53 You can change the values when you start the assistant.
54 The application will ask you 'Do you want to configure it again (y/n)'
55 I you write yes you can change the following settings or you can change the following default values.
56
57 Keys Description:

JARVIS

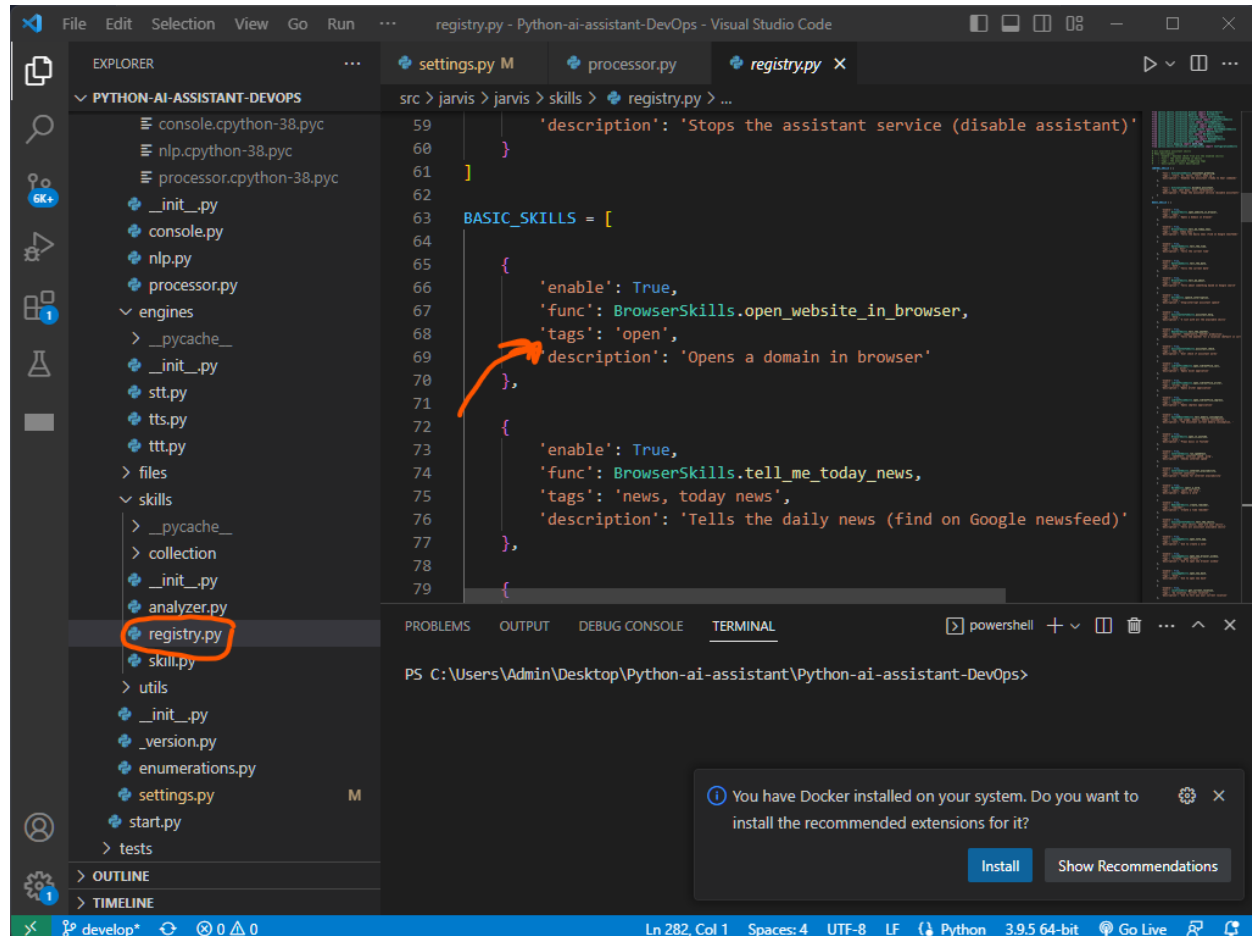
- Voice Assistant Platform v1.0.0-beta -
NOTE: CTRL + C If you want to Quit.

===== GENERAL INFO =====
RESPONSE IN SPEECH: NOT ENABLED
INPUT MODE: TEXT
===== SYSTEM =====
RAM USAGE: 0.15 GB
===== LOG -/var/log/jarvis.log (Total Lines: 491) =====
2023-03-18 14:14:31,216 - root - INFO - Wait a second for startup checks..
2023-03-18 14:14:31,274 - root - INFO - Checking internet connection..
2023-03-18 14:14:32,039 - root - INFO - Internet connection passed!
2023-03-18 14:14:32,088 - root - INFO - Application started
2023-03-18 14:14:32,147 - root - INFO - I'm ready! Say something :-)
2023-03-18 14:14:59,345 - root - INFO - Unclassified user command..
2023-03-18 14:14:59,371 - root - INFO - Executing skill open_website_in_browser

===== ASSISTANT =====
> I opened the google
:-$ tgetpgprp failed: Not a tty

```

**Running Command “Open Google”:** as you can see that Jarvis used the <basic> registry skills as the following picture demonstrates, as this project allows the administrator to add a skill fo Jarvis



# Phase 2



## CI/CD Pipeline

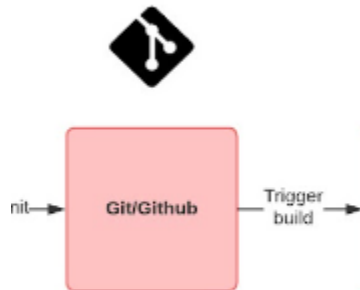


The first stage of our planned pipeline is to use VsCode and Wsl V.2 to **clone** the repository from github as well as modify the code and run several tests. As Vscode helps us push and pull with syncing option with respect to **Github**

The screenshot shows the Visual Studio Code interface with the following details:

- EXPLORER:** Displays a project structure for 'PYTHON-AI-ASSISTANT-DEVOPS'. The 'src' directory is expanded, showing subdirectories like 'core' and 'engines', and files like 'processor.py' and 'enumerations.py'.
- EDITOR:** Shows the 'settings.py' file. The code includes a license header, a copyright notice for Georgios Papachristou, and a configuration dictionary 'ROOT\_LOG\_CONF'.
- TERMINAL:** Shows the output of running 'processor.run()'. It displays the transcript of user input and the program's response.

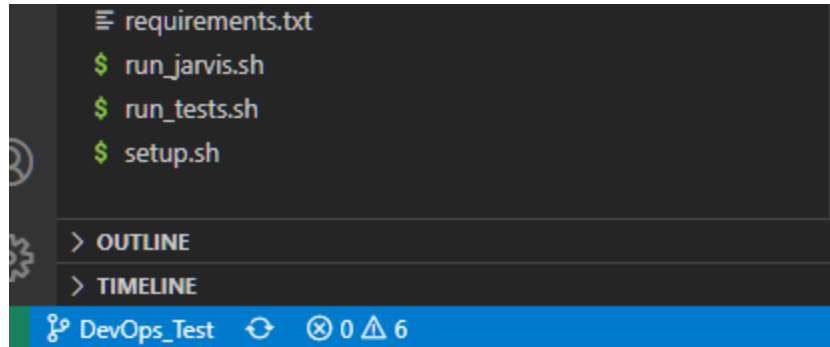
<The project>



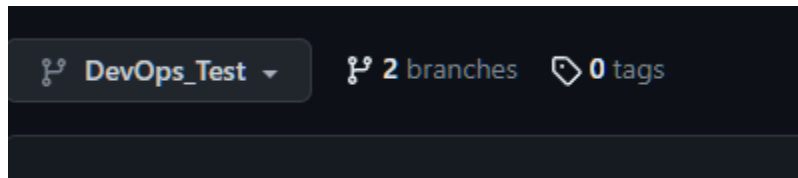
After Cloning using **git**, The second stage is to Fork the repository and add it into our repository as it will allow us to add our own branch as well as help with the second stage of the pipeline which is **CI/CD** and this stage requires the authority of the owned repository.

The screenshot shows a GitHub repository page for 'OUF5 / Python-ai-assistant', which is a fork of 'ggeop/Python-ai-assistant'. The repository is public and has 194 forks and 0 stars. The main branch is 'DevOps\_Test', which is 4 commits ahead of the 'ggeop:develop' branch. The repository contains several files and folders, including '.github', '.vscode', 'bin', 'config', 'imgs', 'src', '.dockerignore', '.gitattributes', and '.gitignore'. The 'About' section states that this forked repo is for the DevOps Project. The 'Releases' section indicates that no releases have been published. The 'Packages' section indicates that no packages have been published. The 'Languages' section is also visible.

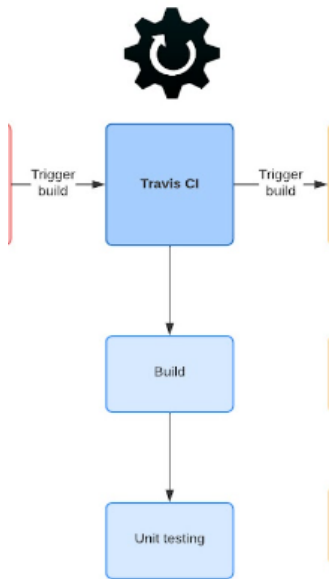
As its shown that the repository has been forked



In VsCode the newly generated branch has been created and chosen to be committed in.



in the Github repository



In this stage github will take an important rule into triggering the building phase as we integrated **Travis CI** to handle the triggering part by building and testing the commit<changes> then deploy it in github after deep checking, below the process of how **Travis CI** works will displayed:

```

1  language: python
2  cache: pip
3
4  os: linux
5  dist: focal
6  python: 3.8
7
8  jobs:
9    include:
10
11  - stage: test
12    before_install:
13      - sudo bash bin/deploy/install_system_dependencies.sh
14    install:
15      - bash bin/deploy/install_python_dependencies.sh
16    script:
17      # Run tests by using Travis virtual env (quick way, pip deps are cached)
18      - sudo bash bin/tests/run_tests_on_travis.sh
19
20  # - stage: merge (develop --> master)
21  #   install:
22  #     - sudo bash setup.sh
23  #   script:
24  #     # Run tests with the same way as locally
25  #     # With this way setup script (setup.sh) is validated
26  #     - sudo bash run_tests.sh
27  #   after_success:
28  #     - sudo bash bin/deploy/merge_develop_to_master.sh
29
30  - stage: deploy
31    install: skip
32    script: skip
33    env:
34      - RELEASE_PACKAGE=jarvis_package.tar
35    before_deploy:
36      - bash bin/deploy/new_release_auto_tagging.sh
37      - bash bin/deploy/create_release_package.sh
38    deploy:
39      provider: releases
40      skip_cleanup: true
41      api_key: $GITHUB_TOKEN
42      file: $RELEASE_PACKAGE
43      on:
44        branch: develop
45

```

The yml file of travis

## #1 commit any changes in the Code

```

File Edit Selection View Go Run ... registry.py - Python-ai-assistant - Visual Studio Code
EXPLORER ... xy Dockerfile ! .travis.yml ! configuration.yaml registry.py x browser.py 3
PYTHON-AI-ASSISTANT src > jarvis > jarvis > skills > registry.py > ...
  58     'tags': 'bye, shut down, exit, termination',
  59     'description': 'Stops the assistant service (disable assistant)'
  60 }
  61 ]
  62
  63 BASIC_SKILLS = [
  64
  65     {
  66         'enable': True,
  67         'func': BrowserSkills.open_website_in_browser,
  68         'tags': 'open',
  69         'description': 'Opens a domain in browser'
  70     },
  71
  72     { # this part has been added for the DevOps course
  73         'enable': True,
  74         'func': BrowserSkills.open_dr_website_course_SE489,
  75         'tags': 'open drs website for devops course',
  76         'description': 'Opens a domain in browser'
  77     },
  78
  79     {
  80         'enable': True,
  81         'func': BrowserSkills.tell_me_today_news,
  82         'tags': 'news, today news',
  83         'description': 'Tells the daily news (find on Google newsfeed)'
  84     },
  85
  86     {
  87         'enable': True,
  88         'func': DatetimeSkills.tell_the_time,
  89         'tags': 'time, hour',
  90         'description': 'Tells the current time'
  91     },
  92 ]
  
```

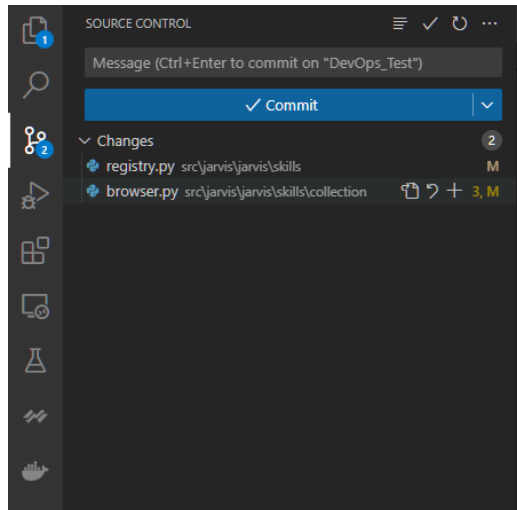
```

File Edit Selection View Go Run Terminal Help browser.py - Python-ai-assistant - Visual Studio Code
EXPLORER ... enumerations.py console.py Dockerfile ! .travis.yml ! configuration.yaml registry.py browser.py 3
PYTHON-AI-ASSISTANT src > jarvis > jarvis > skills > collection > browser.py > BrowserSkills
  78     soup = bs(page, html.parser)
  79     vids = soup.findAll('a', attrs={'class': 'yt-uix-tile-link'})
  80     video = 'https://www.youtube.com' + vids[0]['href'] + "&autoplay=1"
  81     cls.console(info_log="Play Youtube video: {}".format(video))
  82     subprocess.Popen(["python", "-m", "webbrowser", "-t", video], stdout=subprocess.PIPE, shell=
  83
  84 except Exception as e:
  85     cls.console(error_log="Error with the execution of skill with message {}".format(e))
  86     cls.response("I can't find what do you want in Youtube..")
  87
  88 @classmethod #This Code has been added to search for the dr's website of the course
  89 def open_dr_website_course_SE489(cls, voice_transcript, skill):
  90
  91     tags = cls.extract_tags(voice_transcript, skill['tags'])
  92     for tag in tags:
  93         reg_ex = re.search(tag + ' (.*)', voice_transcript)
  94
  95         try:
  96             if reg_ex:
  97                 search_text = reg_ex.group(1)
  98                 base = "https://malenezzi.github.io/malenezzi/SE489/=({})&orderBy=viewCount"
  99
 100 except Exception as e:
 101     cls.console(error_log="Error with the execution of skill with message {}".format(e))
 102     cls.response("I can't find what do you want..")
 103
 104 @classmethod
 105 def open_website_in_browser(cls, voice_transcript, skill):
 106     """
 107     Opens a web page in the browser.
 108     :param voice_transcript: string (e.g 'about google')
 109     :param skill: dict (e.g
 110
 111     Web page can be in the following formats
 112     * open www.xxxx.com
 113     * open xxxx.com
 114
 115
 116
 117
 118
 119
 120
 121
 122
  
```

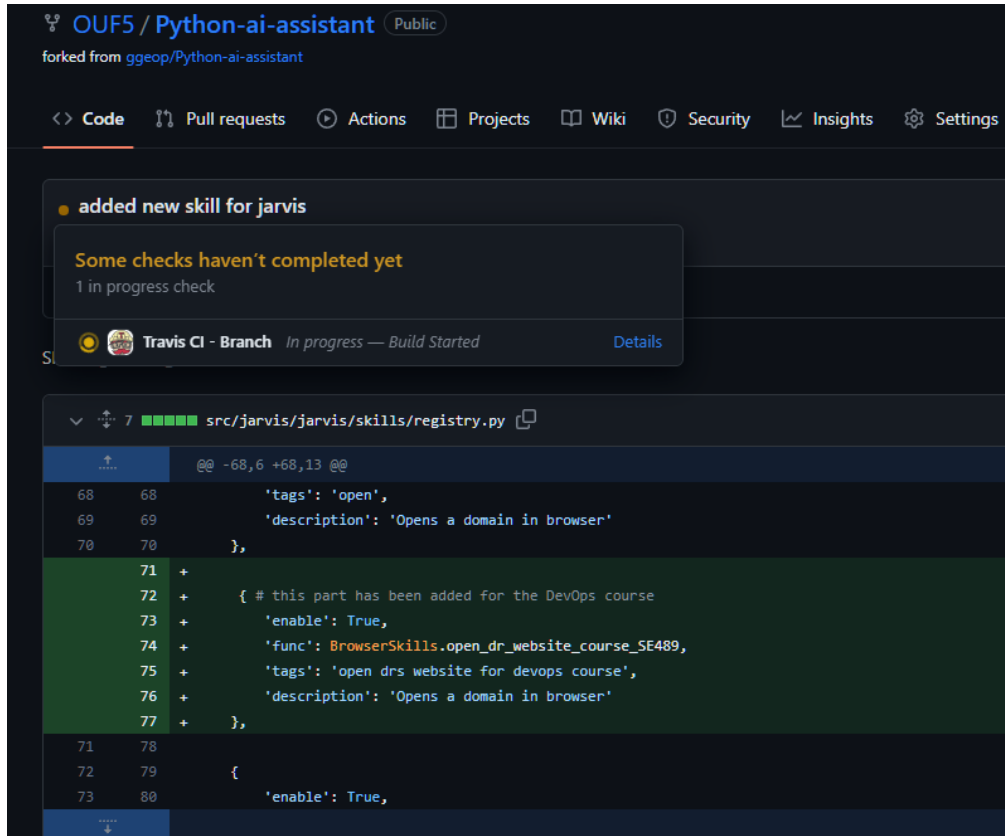
We decided to add new skills or “assistant skills” to jarvis the skill enable the user to command Jarvis to open the Course website

<<https://malenezi.github.io/malenezi/SE489/>> by telling him the following command :

```
open drs website for devops course
```



We committed the changes with a comment “added new skill for jarvis” as to heads of see what is going on in github repository



The screenshot shows a GitHub repository page for 'OUFS / Python-ai-assistant', which is a fork of 'ggeop/Python-ai-assistant'. The repository is public. The main navigation bar includes links for Code, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. A commit message 'added new skill for jarvis' is visible, along with a status 'Some checks haven't completed yet' and '1 in progress check'. A Travis CI build is shown as 'In progress' with a 'Build Started' status. The code viewer displays a diff for the file 'src/jarvis/jarvis/skills/registry.py', showing changes between lines 68 and 70, and 71 and 77. The code includes a dictionary entry for a skill with tags, description, and a function reference.

```
src/jarvis/jarvis/skills/registry.py  
@@ -68,6 +68,13 @@  
68 68         'tags': 'open',  
69 69         'description': 'Opens a domain in browser'  
70 70     },  
71 +  
72 +     { # this part has been added for the DevOps course  
73 +         'enable': True,  
74 +         'func': BrowserSkills.open_dr_website_course_SE489,  
75 +         'tags': 'open drs website for devops course',  
76 +         'description': 'Opens a domain in browser'  
77 +     },  
71 78  
72 79     {  
73 80         'enable': True,
```

Looking at github commits we can see that the Travis CI are pending the commit to be built and tested.



**Travis CI** Dashboard Changelog Documentation Help

Search all repositories

**My Repositories** Running (0/0) +

- ✓ OUF5/Python-ai-assistant # 5
  - Duration: 2 min 41 sec
  - Finished: 3 minutes ago
- OUF5/TheEvent
  - Duration: -
- OUF5/DevOps-2.0
  - Duration: -
- OUF5/indoor-and-outdoor
  - Duration: -
- OUF5/CanSat
  - Duration: -
- OUF5/Real-time-Face-detection
  - Duration: -

**OUF5 / Python-ai-assistant** build unknown log scan passing

Current Branches Build History Pull Requests Log Scans More options

✓ **DevOps\_Test** added new skill for jarvis → #5 passed [Restart build](#)

Commit c394af2  
Compare 75e6c91...c394af2  
Branch DevOps\_Test  
OUF  
Ran for 3 min 9 sec  
Total time 2 min 41 sec  
3 minutes ago

[Build jobs](#) [View config](#)

✓ **test** 2 min 19 sec

✓ # 5.1 AMD64 Focal Python... no environment variables 2 min 19 sec

✓ **deploy** 22 sec

✓ # 5.2 AMD64 Focal Python... RELEASE\_PACKAGE 22 sec

This the Travis page to report the Building that happened after our commit and as it shows the build with test and deploy has been done with travis.

## CI/CD Testing

Continuous testing is a key component of continuous integration / continuous delivery/deployment (CI/CD) pipelines. It provides timely feedback to help improve code quality, avoid bottlenecks, and expedite DevOps processes.

```
skill_analyzer_tests.py

1 from sklearn.feature_extraction.text import TfidfVectorizer
2 from sklearn.metrics.pairwise import cosine_similarity
3
4 from jarvis import settings
5 from jarvis.skills.registry import CONTROL_SKILLS, BASIC_SKILLS, ENABLED_BASIC_SKILLS
6 from jarvis.enumerations import MongoCollections
7 from jarvis.skills.analyzer import SkillAnalyzer
8 from jarvis.utils.mongoDB import db
9
10
11 class TestSkillMatching(unittest.TestCase):
12
13     def setUp(self):
14
15         all_skills = {
16             MongoCollections.CONTROL_SKILLS.value: CONTROL_SKILLS,
17             MongoCollections.ENABLED_BASIC_SKILLS.value: ENABLED_BASIC_SKILLS,
18         }
19         for collection, documents in all_skills.items():
20             db.update_collection(collection, documents)
21
22         default_assistant_name = settings.DEFAULT_GENERAL_SETTINGS['assistant_name']
23         default_input_mode = settings.DEFAULT_GENERAL_SETTINGS['input_mode']
24         default_response_in_speech = settings.DEFAULT_GENERAL_SETTINGS['response_in_speech']
25
26         default_settings = {
27             'assistant_name': default_assistant_name,
28             'input_mode': default_input_mode,
29             'response_in_speech': default_response_in_speech,
30         }
31
32         db.update_collection(collection=MongoCollections.GENERAL_SETTINGS.value, documents=[default_settings])
33
34         self.skill_analyzer = SkillAnalyzer(
35             weight_measure=TfidfVectorizer,
36             similarity_measure=cosine_similarity,
37             args=settings.SKILL_ANALYZER.get('args'),
38             sensitivity=settings.SKILL_ANALYZER.get('sensitivity'),
39         )
40
```

Unit Test Code #1

```
41 def test_all_skill_matches(self):
42     """
43     In this test we examine the matches or ALL skill tags with the functions
44     If all skills matched right then the test passes otherwise not.
45
46     At the end we print a report with all the not matched cases.
47
48     """
49
50     verifications_errors = []
51
52     for basic_skill in BASIC_SKILLS:
53         print('-----')
54         print('Examine skill: {}'.format(basic_skill.get('name')))
55         for tag in basic_skill.get('tags',).split(','):
56             # If the skill has matching tags
57             if tag:
58                 expected_skill = basic_skill.get('name')
59                 actual_skill = self.skill_analyzer.extract(tag).get('name')
60                 try:
61                     self.assertEqual(expected_skill, actual_skill)
62                 except AssertionError as e:
63                     verifications_errors.append({'tag': tag, 'error': e})
64
65         print('----- SKILLS MATCHING REPORT -----')
66         if verifications_errors:
67             for increment, e in enumerate(verifications_errors):
68                 print('{} {}'.format(increment, e.get('tag')))
69                 print('Not correct match with tag: {}'.format(e.get('tag')))
70                 print('Assertion values (expected != actual): {}'.format(e.get('error')))
71             raise AssertionError
72         else:
73             print('All skills matched correctly!')
```

Unit Test Code #2

Current Branches Build History Pull Requests Log Scans > Build #5 More options

✓ DevOps\_Test added new skill for jarvis

Commit c394af2

Compare 75e6c91...c394af2

Branch DevOps\_Test

OUF

#5 passed

Ran for 3 min 13 sec

Total time 2 min 41 sec

52 minutes ago

Restart build

Build jobs View config

✓ test ←

2 min 19 sec

✓ # 5.1	AMD64	Focal	</> Python: 3.8	no environment variables set	2 min 19 sec	
---------	-------	-------	-----------------	------------------------------	--------------	--

✓ deploy

22 sec

✓ # 5.2	AMD64	Focal	</> Python: 3.8	RELEASE_PACKAGE=jarvis_package.tar	22 sec	
---------	-------	-------	-----------------	------------------------------------	--------	--

We used Travis CI to do the Continuous Testing

Job log

View config ●

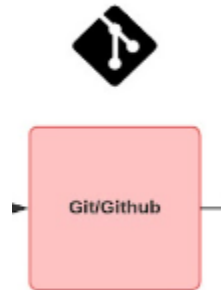
✕ Remove log
⌵ Raw log

```

▶ 1 Worker information worker_info 0.06s
6
▶ 7 Build system information system_info 0.01s
166
167
2.02s
docker_mtu_and_registry_mirrors
resolvconf
▶ 168 $ git clone --depth=50 --branch=DevOps_Test https://github.com/OUF5/Python-ai- git.checkout 0.75s
178
179 $ source ~/virtualenv/python3.8/bin/activate 0.01s
▶ 180 Setting up build cache cache.1
186
▶ 187 cache.pip
189 $ python --version
190 Python 3.8.13
191 $ pip --version
192 pip 22.1.2 from /home/travis/virtualenv/python3.8.13/lib/python3.8/site-packages/pip (python 3.8)
▶ 193 $ sudo bash bin/deploy/install_system_dependencies.sh before_install 81.62s
▶ 1131 $ bash bin/deploy/install_python_dependencies.sh install 21.39s
1288 $ sudo bash bin/tests/run_tests_on_travis.sh 5.01s
1289
1290 First time configuration..
1291
1292 ===== Assistant Name =====
1293 Assistant name- jarvis configured successfully!
1294 Input mode - text configured successfully!
1295 Speech response output- False configured successfully!
1296 -----
1297 Examine skill: open_website_in_browser
1298 -----
1299 Examine skill: open_dr_website_course_SE489
1300 -----
1301 Examine skill: tell_me_today_news
1302 -----

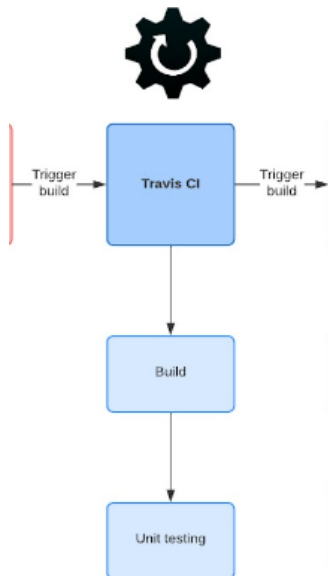
```

Travis CI provides Job log that shows the status of the every skill and all of them passed including the new skill that we add



In this stage the deployment is continues as it uses Travis CI for this job and GitHub enable the option of deployment from Travis, and Travis CI process for the deployment is the following :

- 1- Trigger Build
- 2- Test out the build using pyUnit test
- 3- pending the commit until the success of the build and test
- 4- deploy the commit and the changes into GitHub




Here is some detailed pictures of how the deployment works in Travis and GitHub:

## OUF5 / Python-ai-assistant

build unknown log scan passing

Current Branches Build History Pull Requests Log Scans > Build #5

More options 


✓ DevOps\_Test added new skill for jarvis

→ #5 passed

 Restart build


Commit c394af2 

 Ran for 3 min 13 sec

Compare 75e6c91..c394af2 


 Total time 2 min 41 sec

Branch DevOps\_Test 

 about an hour ago

 OUF

Build jobs

View config 

✓ test

 2 min 19 sec

✓


# 5.1

 AMD64

 Focal

 Python: 3.8

 no environment variables set

 2 min 19 sec



✓ deploy 


 22 sec

✓

# 5.2

 AMD64

 Focal

 Python: 3.8

 RELEASE\_PACKAGE=jarvis\_package.tar

 22 sec



The deploy in the build jobs

OUF5 / Python-ai-assistant (Public)  
forked from ggeop/Python-ai-assistant

<> Code Pull requests Actions Projects Wiki Security Insights Settings

● added new skill for jarvis

Some checks haven't completed yet  
1 in progress check

Travis CI - Branch In progress — Build Started Details

```

71 +
72 + { # this part has been added for the DevOps course
73 +     'enable': True,
74 +     'func': BrowserSkills.open_dr_website_course_SE489,
75 +     'tags': 'open drs website for devops course',
76 +     'description': 'Opens a domain in browser'
77 + },
78
79 {
80     'enable': True,

```

As this indicates that commit is waiting for travis to deploy it

```

102 +
103 + @classmethod
104 + def open_website_in_browser(cls, voice_transcript, skill):
105 +     """
106 +
107 +     @ -137,6 +153,7 @@ def tell_me_today_news(cls, **kwargs):
108 +
109 +     except Exception as e:
110 +         cls.console(error_log="Error with the execution of skill with message {0}".format(e))
111 +         cls.response("I can't find about daily news..")
112 +
113 +
114 + @classmethod
115 + def _decoded_wiki_response(cls, topic):

```

```

71 +
72 + { # this part has been added for the DevOps course
73 +     'enable': True,
74 +     'func': BrowserSkills.open_dr_website_course_SE489,
75 +     'tags': 'open drs website for devops course',
76 +     'description': 'Opens a domain in browser'
77 + },
78
79 {
80     'enable': True,


```

As here shows that the commit has been deployed after the build and test is done









# CI/CD Monitoring

Utilizing a monitoring mechanism is essential to increase productivity and maintain overall quality of our workflow. One of the main reasons why we chose Travis CI as a tool is that it provides monitoring capabilities for the CI/CD pipeline. Travis CI provides a dashboard that displays the status of each build and test in real-time. We are able to see which builds passed and which failed, and we can get an overview about logs and output from each build and test.

🔗 📄 OUF5 / Python-ai-assistant  build unknown log scan passing

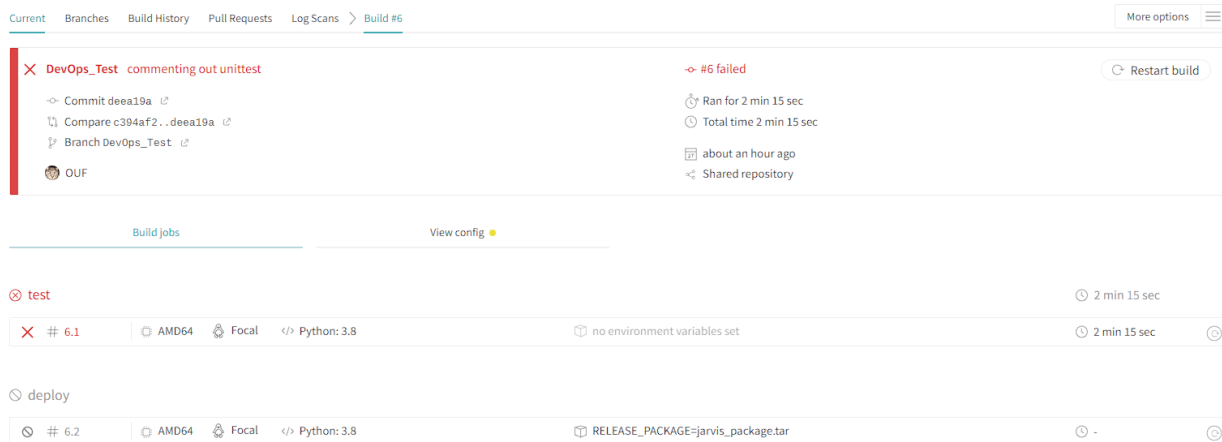
Current Branches Build History Pull Requests Log Scans More options

✖ DevOps_Test	commenting out unittest	→ #6 failed → deea19a 	⌚ 2 min 15 sec 📅 about an hour ago	🔄
✔ DevOps_Test	added new skill for jarvis	→ #5 passed → c394af2 	⌚ 2 min 41 sec 📅 about an hour ago	🔄
✔ DevOps_Test	Monitor	→ #4 passed → 75e6c91 	⌚ 2 min 37 sec 📅 7 hours ago	🔄
✔ DevOps_Test	this is a test	→ #3 passed → eb5eb79 	⌚ 2 min 29 sec 📅 7 hours ago	🔄
✔ DevOps_Test	Testing out if Travis Works	→ #2 passed → f7856fe 	⌚ 5 min 55 sec 📅 a day ago	🔄
⌚ DevOps_Test	CI/CD	→ #1 canceled → aa76c20 	⌚ 5 min 25 sec 📅 a day ago	🔄

A dashboard showcasing the status of each build

✔	→ DevOps_Test	deea19a	📅 about an hour ago	commenting out unittest	# 6	Build created successfully
✔	→ DevOps_Test	c394af2	📅 5 hours ago	added new skill for jarvis	# 5	Build created successfully
✔	→ DevOps_Test	75e6c91	📅 7 hours ago	Monitor	# 4	Build created successfully
✔	→ DevOps_Test	eb5eb79	📅 a day ago	this is a test	# 3	Build created successfully
✔	→ DevOps_Test	f7856fe	📅 a day ago	Testing out if Travis Works	# 2	Build created successfully
✔	→ DevOps_Test	aa76c20	📅 a day ago	CI/CD	# 1	Build created successfully

As here shows that the commit has been deployed after the build and test is done



The screenshot shows the Travis CI interface for a build named 'DevOps\_Test'. The build status is 'failed' (indicated by a red 'X' and '#6 failed'). The build log shows the following steps:

- Commit: deea19a
- Compare: c394af2...deea19a
- Branch: DevOps\_Test
- Author: OUF

Build statistics:

- Ran for 2 min 15 sec
- Total time 2 min 15 sec
- about an hour ago
- Shared repository

Build jobs summary:

- test: # 6.1, AMD64, Focal, Python: 3.8, no environment variables set, 2 min 15 sec
- deploy: # 6.2, AMD64, Focal, Python: 3.8, RELEASE\_PACKAGE=jarvis\_package.tar, -

Providing metrics and general information about successful/failed builds

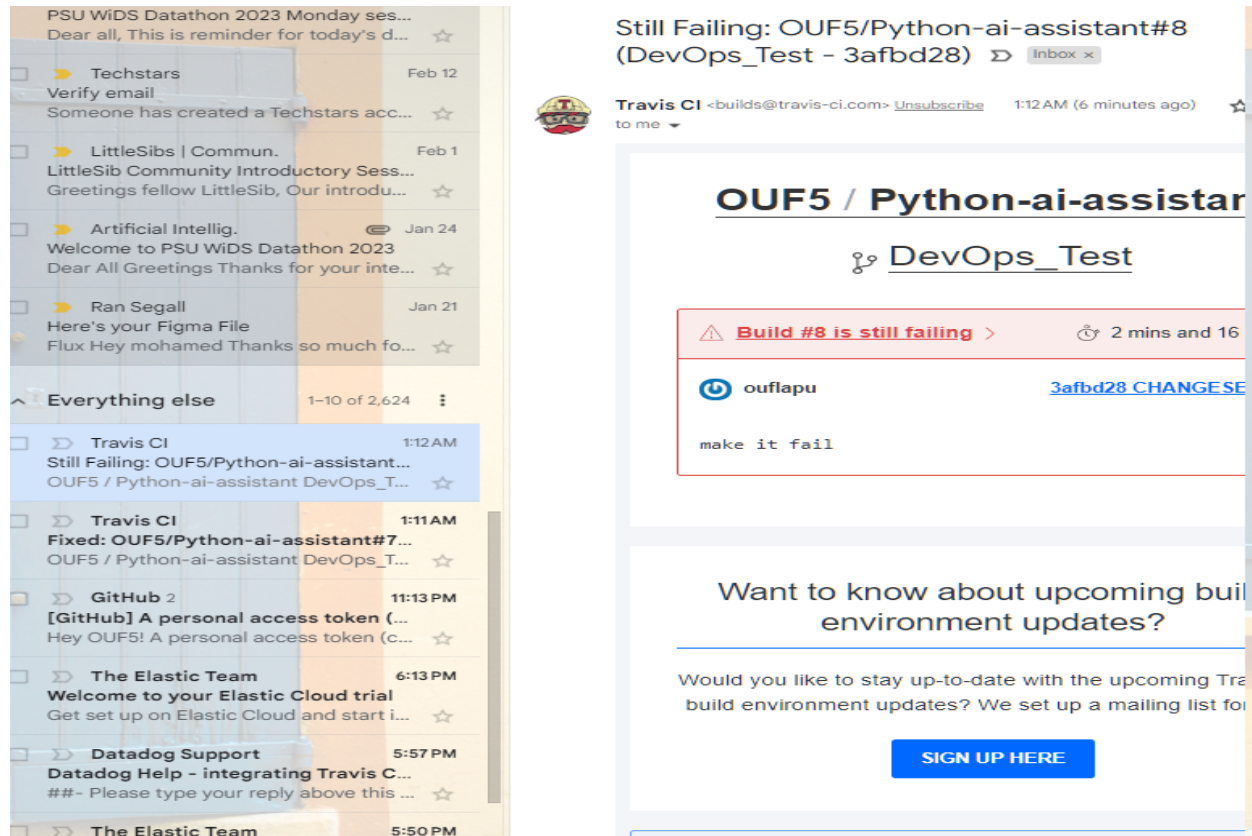
Travis CI can also send notifications to team members via email when a build or test fails or succeeds which will allow us to react quickly for feedback and troubleshooting.

```

43 on:
44   branch: develop
45
46 # stages:
47 #   - name: test
48 #     if: NOT (branch IN (develop, master)) AND (NOT (branch == ^Release.*))
49 #   - name: merge (develop --> master)
50 #     if: branch == develop AND NOT (type == pull_request)
51 #   - name: deploy
52 #     if: branch == master
53
54 notifications:
55   email:
56     - mohammed5ibnouf@gmail.com
57     - 219211206@psu.edu.sa
58     - 218110378@psu.edu.sa
59
60

```

Travis configuration file with email notification option



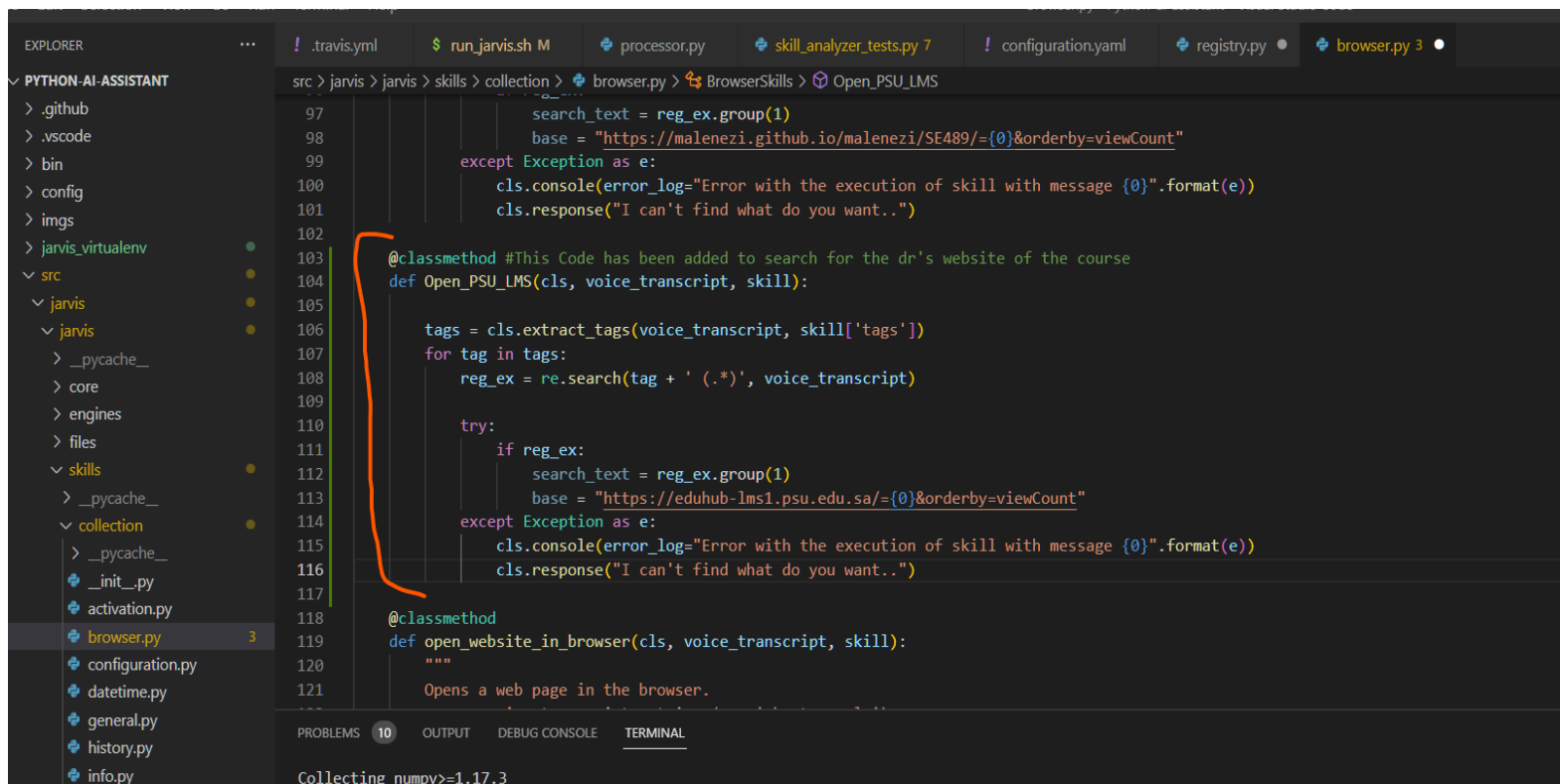
Email notification received

For these reasons, we have decided to use Travis CI's monitoring capabilities to help ensure that any issues or errors in the pipeline are caught early on and can be addressed quickly and that would help us to prevent code regressions and maintain code quality over time.

# Phase 3

## Second Cycle of the CI/CD Pipeline

We decided to add new skill for this phase also which will allow our AI assistant to open PSU's LMS system <eduhub-lms1.psu.edu.sa>

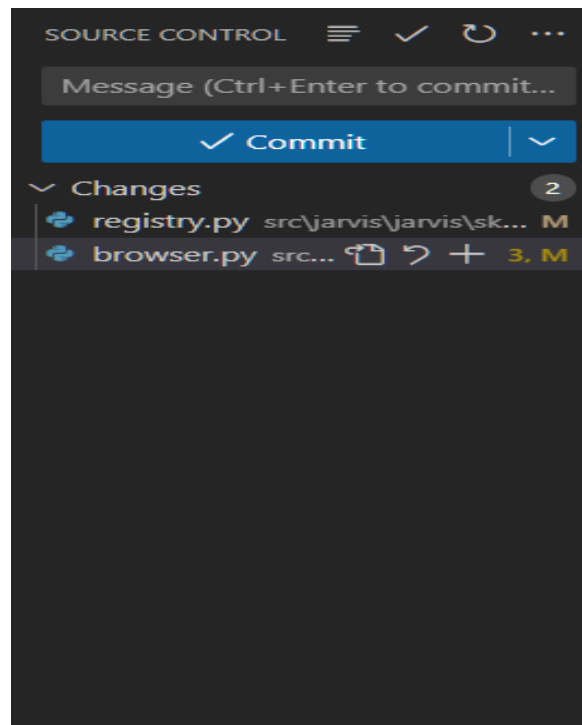


```

src > jarvis > jarvis > skills > collection > browser.py > BrowserSkills > Open_PSU_LMS
97         search_text = reg_ex.group(1)
98         base = "https://malenezi.github.io/malenezi/SE489/= {0}&orderby=viewCount"
99     except Exception as e:
100         cls.console(error_log="Error with the execution of skill with message {0}".format(e))
101         cls.response("I can't find what do you want..")
102
103     @classmethod #This Code has been added to search for the dr's website of the course
104     def Open_PSU_LMS(cls, voice_transcript, skill):
105
106         tags = cls.extract_tags(voice_transcript, skill['tags'])
107         for tag in tags:
108             reg_ex = re.search(tag + ' (.*)', voice_transcript)
109
110             try:
111                 if reg_ex:
112                     search_text = reg_ex.group(1)
113                     base = "https://eduhub-lms1.psu.edu.sa/= {0}&orderby=viewCount"
114             except Exception as e:
115                 cls.console(error_log="Error with the execution of skill with message {0}".format(e))
116                 cls.response("I can't find what do you want..")
117
118     @classmethod
119     def open_website_in_browser(cls, voice_transcript, skill):
120         """
121         Opens a web page in the browser.
122
123     Collecting numpy>=1.17.3
  
```

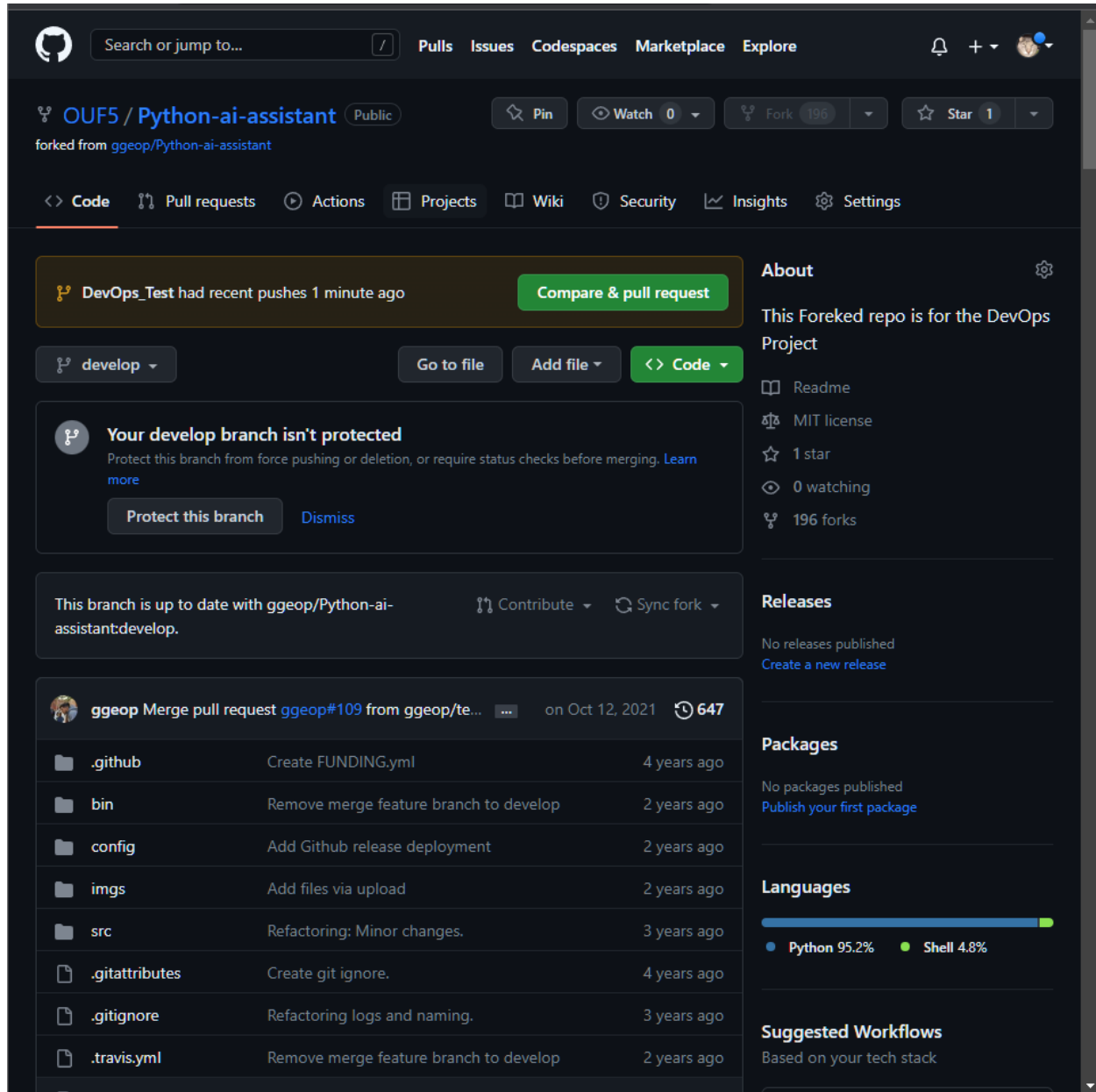
The code to open PSU LMS website

```
74     'func': BrowserSkills.open_dr_website_course_SE489,  
75     'tags': 'open drs website for devops course',  
76     'description': 'Opens a domain in browser'  
77 },  
78  
79 { # this part has been added for the DevOps course  
80     'enable': True,  
81     'func': BrowserSkills.Open_PSU_LMS, ←  
82     'tags': 'open the psu lms',  
83     'description': 'Opens a domain in browser'  
84 },  
85  
86 {  
87     'enable': True,  
88     'func': BrowserSkills.tell_me_today_news,  
89     'tags': 'news, today news',  
90     'description': 'Tells the daily news (find on Google newsfeed)'  
91 },  
92  
93 {  
94     'enable': True,  
95     'func': DatetimeSkills.tell_the_time,  
96     'tags': 'time, hour',  
97     'description': 'Tells the current time'  
98 },  
99
```



The commits to our github repository through VSCode

The changes that we have committed is pushed to the main repository to initiate the auto building by Travis CI which will start the build and testing processes



The screenshot shows the GitHub interface for a repository named 'OUF5 / Python-ai-assistant'. The repository is public and has 196 forks and 1 star. The main branch is 'develop'. A notification indicates that 'DevOps\_Test' had recent pushes 1 minute ago. A warning message states 'Your develop branch isn't protected'. The repository is up to date with the upstream 'ggeop/Python-ai-assistant:develop'. A pull request is open, titled 'Merge pull request ggeop#109 from ggeop/te...'. The file list shows various files and folders, including '.github', 'bin', 'config', 'imgs', 'src', '.gitattributes', '.gitignore', and '.travis.yml'. The right sidebar contains sections for 'About', 'Releases', 'Packages', 'Languages', and 'Suggested Workflows'.

Search or jump to... Pulls Issues Codespaces Marketplace Explore

OUF5 / Python-ai-assistant Public

forked from ggeop/Python-ai-assistant

Code Pull requests Actions Projects Wiki Security Insights Settings

DevOps\_Test had recent pushes 1 minute ago Compare & pull request

develop Go to file Add file <> Code

Your develop branch isn't protected Protect this branch Dismiss

This branch is up to date with ggeop/Python-ai-assistant:develop. Contribute Sync fork

ggeop Merge pull request ggeop#109 from ggeop/te... on Oct 12, 2021 647

File	Commit Message	Time Ago
.github	Create FUNDING.yml	4 years ago
bin	Remove merge feature branch to develop	2 years ago
config	Add Github release deployment	2 years ago
imgs	Add files via upload	2 years ago
src	Refactoring: Minor changes.	3 years ago
.gitattributes	Create git ignore.	4 years ago
.gitignore	Refactoring logs and naming.	3 years ago
.travis.yml	Remove merge feature branch to develop	2 years ago

About This Forked repo is for the DevOps Project

Readme MIT license 1 star 0 watching 196 forks



Releases No releases published Create a new release

Packages No packages published Publish your first package

Languages Python 95.2% Shell 4.8%

Suggested Workflows Based on your tech stack

The push and commit in GitHub

 OUF5 / Python-ai-assistant  build unknown log scan passing

[Current](#) [Branches](#) [Build History](#) [Pull Requests](#) [Log Scans](#) > Build #9 [Job #9.1](#) [More options](#)

oo DevOps\_Test Adding New Skill

Commit d75daad

Compare 3afbd28...d75daad

Branch DevOps\_Test

OUF

Python: 3.8

AMD64

#9.1 booting

Waiting to start


[Cancel job](#)

[Job log](#) [View config](#)

1 Job received

2 Queued

3 Booting virtual machine

 **Travis CI**

©TRAVIS CI, GMBH

Bonner Strasse 12

51379 Leverkusen, Germany

Work with Travis CI

HELP

[Documentation](#)

[Community](#)

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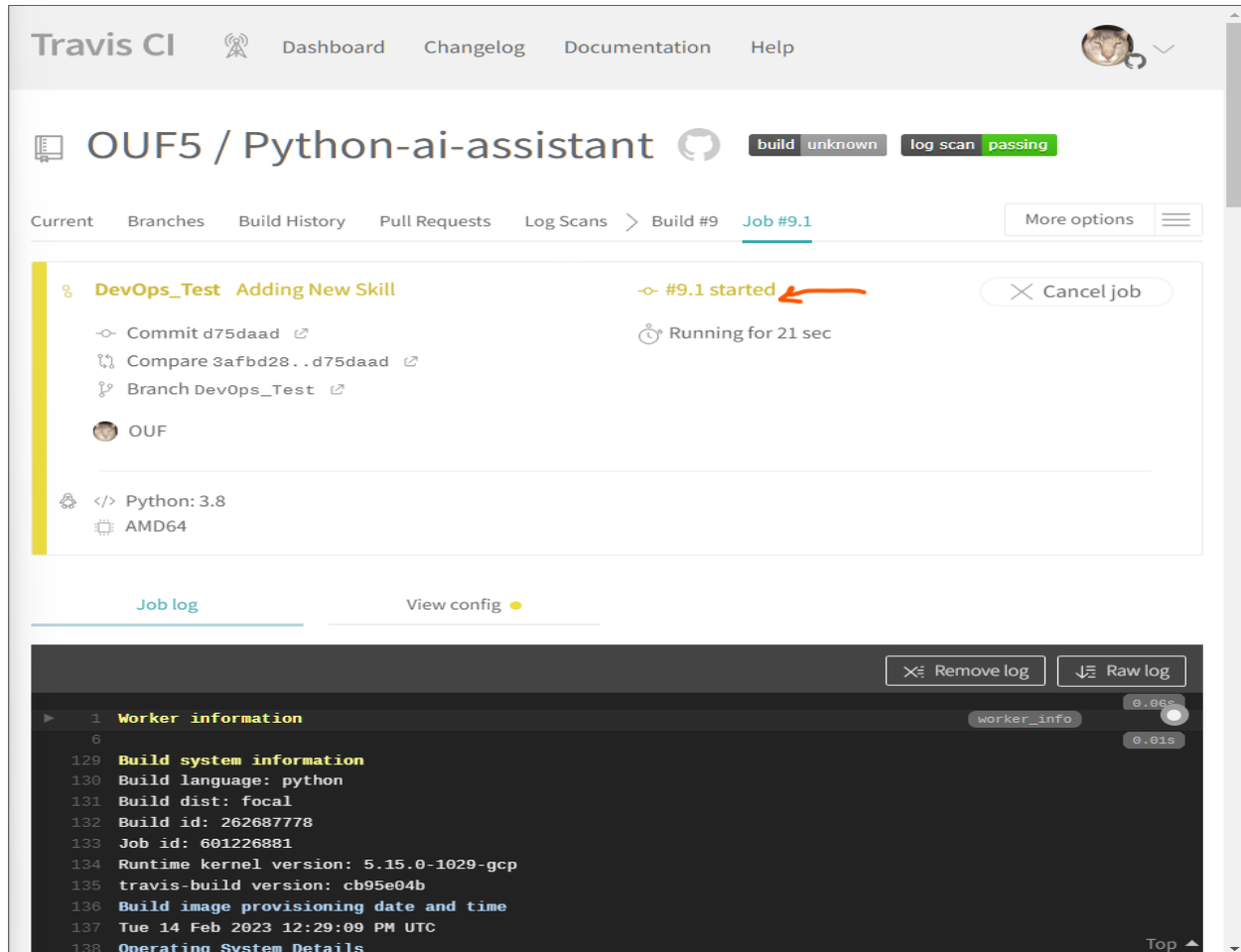
TRAVIS CI STATUS

● Travis CI Status

Booting status involves setting up the necessary software, libraries, and dependencies required for the build.



Here is the starting process of running the build itself. This involves running the build script, which typically includes steps like compiling code, running tests, and packaging artifacts.

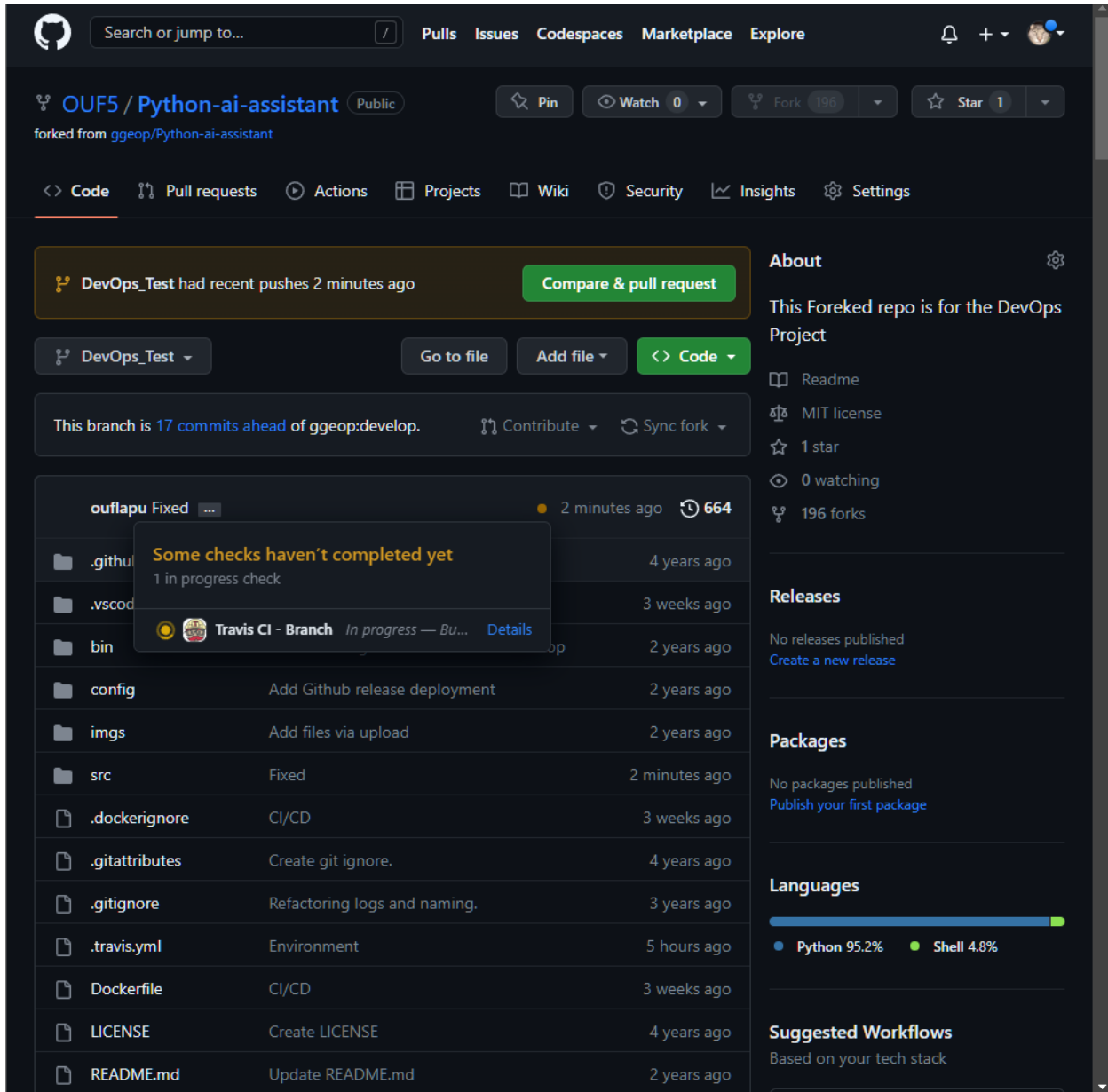


The screenshot displays the Travis CI web interface for a repository named "OUF5 / Python-ai-assistant". The top navigation bar includes links for Dashboard, Changelog, Documentation, and Help. The repository status shows "build unknown" and "log scan passing". The main section is titled "Job #9.1" and shows the build process starting. A yellow sidebar on the left lists the build steps: "DevOps\_Test Adding New Skill", "Commit d75daad", "Compare 3afbd28...d75daad", and "Branch DevOps\_Test". The main content area shows the job status as "#9.1 started" with a red arrow pointing to it, and "Running for 21 sec". A "Cancel job" button is visible. Below the job status, there are tabs for "Job log" and "View config". The "Job log" tab is active, showing a terminal output with the following content:

```
1 Worker information
6
129 Build system information
130 Build language: python
131 Build dist: focal
132 Build id: 262687778
133 Job id: 601226881
134 Runtime kernel version: 5.15.0-1029-gcp
135 travis-build version: cb95e04b
136 Build image provisioning date and time
137 Tue 14 Feb 2023 12:29:09 PM UTC
138 Operating System Details
```

Started status

Travis CI is providing a notice on the main repository in github of the building process. The build is successful at the end of the new skill addition.



Search or jump to...

Pulls Issues Codespaces Marketplace Explore

OUF5 / Python-ai-assistant Public

forked from ggeop/Python-ai-assistant

Code Pull requests Actions Projects Wiki Security Insights Settings

DevOps\_Test had recent pushes 2 minutes ago [Compare & pull request](#)

DevOps\_Test Go to file Add file Code

This branch is 17 commits ahead of ggeop:develop. [Contribute](#) [Sync fork](#)

ouflapu Fixed 2 minutes ago 664

Some checks haven't completed yet  
1 in progress check

Travis CI - Branch In progress — Bu... [Details](#)

.github 4 years ago

.vscode 3 weeks ago

bin 2 years ago

config Add Github release deployment 2 years ago

imgs Add files via upload 2 years ago

src Fixed 2 minutes ago

.dockerignore CI/CD 3 weeks ago

.gitattributes Create git ignore. 4 years ago

.gitignore Refactoring logs and naming. 3 years ago

.travis.yml Environment 5 hours ago

Dockerfile CI/CD 3 weeks ago

LICENSE Create LICENSE 4 years ago

README.md Update README.md 2 years ago

About

This Forked repo is for the DevOps Project

Readme

MIT license

1 star

0 watching

196 forks

Releases

No releases published  
[Create a new release](#)

Packages

No packages published  
[Publish your first package](#)

Languages

Python 95.2% Shell 4.8%

Suggested Workflows

Based on your tech stack

forked from ggeop/Python-ai-assistant


<> Code Pull requests Actions Projects Wiki Security Insights Settings

DevOps\_Test had recent pushes 9 minutes ago [Compare & pull request](#)

DevOps\_Test 2 branches 0 tags [Go to file](#) [Add file](#) [Code](#)

This branch is 18 commits ahead of ggeop:develop. [Contribute](#) [Sync fork](#)

ouflapu adding new skill ✓ 6d29dbf 9 minutes ago 🕒 665 commits

📁 .github		4 years ago
📁 .vscode		3 weeks ago
📁 bin	<div><div><div>✓</div><div> Travis CI - Branch</div><div>Successful in 3m — Build Passed</div></div><div><a href="#">Details</a></div></div>	2 years ago
📁 config	Add Github release deployment	2 years ago
📁 imgs	Add files via upload	2 years ago
📁 src	adding new skill	9 minutes ago
📄 .dockerignore	CI/CD	3 weeks ago

**About**  
This Fork  
Project  
[Readme](#)  
[MIT license](#)  
1 star  
0 watchers  
196 forks

**Releases**  
No releases published  
[Create a new release](#)

**Packages**  
No packages published  
[Publish your package](#)

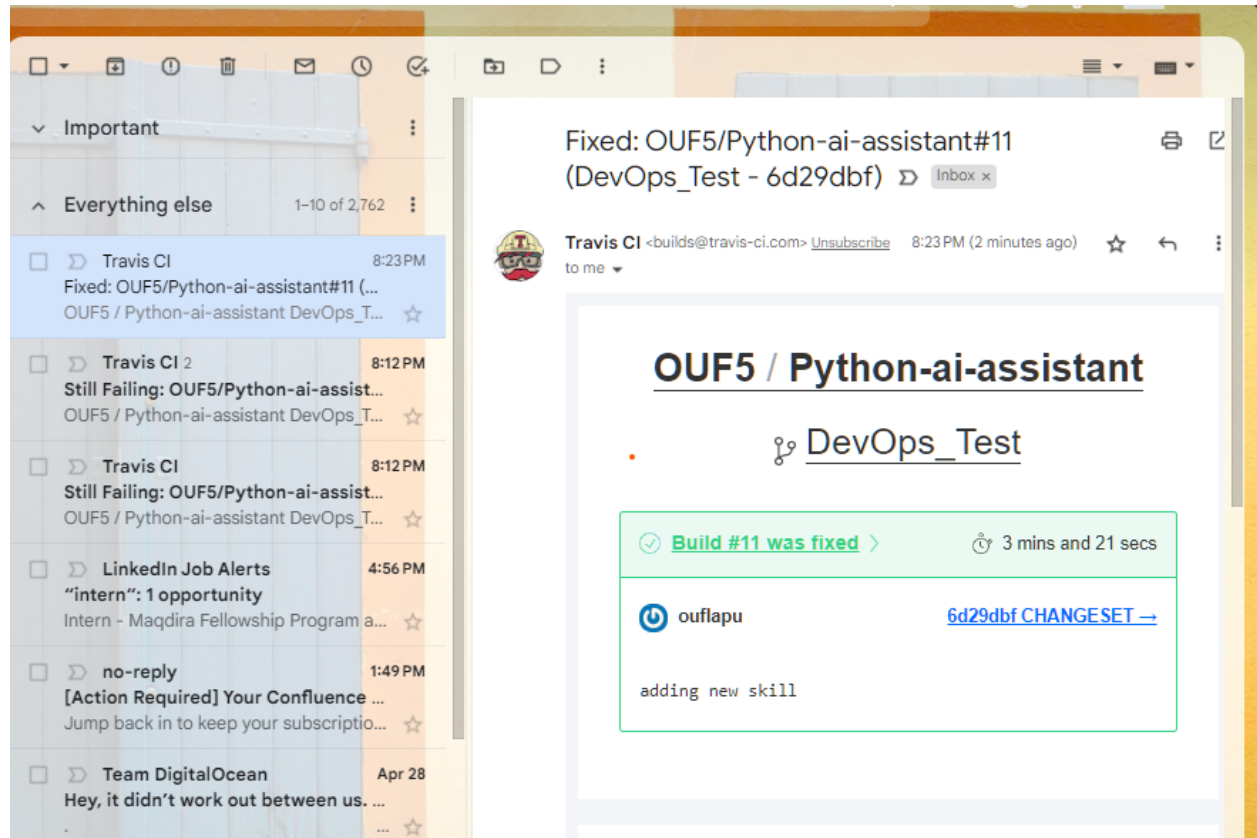
```

1364 Examine skill: set_alarm
1365 -----
1366 Examine skill: do_calculations
1367 -----
1368 Examine skill: configure_assistant
1369 -----
1370 Examine skill: increase_master_volume
1371 -----
1372 Examine skill: reduce_master_volume
1373 -----
1374 Examine skill: mute_master_volume
1375 -----
1376 Examine skill: max_master_volume
1377 ----- SKILLS MATCHING REPORT -----
1378 All skills matched correctly!
1379 .
1380 -----
1381 Ran 1 test in 0.414s
1382
1383 OK
1384 The command "sudo bash bin/tests/run_tests_on_travis.sh" exited with 0.
1385 store build cache
1386 changes detected (content changed, file is created, or file is
1387 deleted):\n/home/travis/.cache/pip/http/0/5/4/8/a/0548ad9355a421ef6b75925de6aac90258cb93cdb507fc8d95382
1388 ffa
1389 /home/travis/.cache/pip/http/0/7/d/4/7/07d470d66c3d79670d250a570176f7d00e6af1a5bfd9a075fcab9eba
1390 /home/travis/.cache/pip/http/0/7/f/1/4/07f144dba198008d2fd8dedec40a2f93ce39b903bf8a3294e084a4b9
1391 /home/travis/.cache/pip/http/1/0/4/5/4/10454ada65038cf2bce47415ca36d217aecd29df8ffcc50ef7da079f
1392 /home/travis/.cache/pip/http/1/9/9/d/1/199d128a8b0a6a727869cf288f0802d0ddfe7785a99b6957366e40a4
1393 /home/travis/.cache/pip/http/3/3/2/7/e/3327e3666df596605e3bccaf3bbf488dd424f2d1b184f32bc12495e2
1394 /home/travis/.cache/pip/http/3/3/c/6/e/33c6e3d12aa2b7a771090fde6d253761f983f57bc1aea0e452ddaa98
1395 /home/travis/.cache/pip/http/4/3/2/4/0/43240164bf3fcad075500c4fc22e63f84dc608a5dfd5fe783199a8c6
1396 /home/travis/.cache/pip/http/4/6/d/d/6/46dd6c7d38d9678c38989b4cd14dca9da87ef21be758c0f56968dec
1397 /home/travis/.cache/pip/http/4/8/0/d/6/480d6f7ef777fd4fe0178a90255bde2c80a7d6807db13d9efb77f8d8
1398 /home/travis/.cache/pip/http/4/a/1/b/f/4\n...
1399 changes detected, packing new archive
1400 gzip: warning: GZIP environment variable is deprecated; use an alias or script
1401 uploading DevOps_Test/cache--linux-focal-
1402 e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855--python-3.8.tgz
1403 cache uploaded
1404
1405 Done. Your build exited with 0.


```

Travis CI Job Log shows that all the skills have been passed the testing.

Part of the monitoring capabilities in Travis CI which we had relied on in the previous phase. Monitoring is done via Travis email notifications and a report on the main dashboard.



Email notification received

OUF5 / Python-ai-assistant  build unknown log scan passing

Current Branches Build History Pull Requests Log Scans More options

✓ DevOps_Test	adding new skill	→ #11 passed	⌚ 2 min 49 sec	⊙
⊙ OUF		→ 6d29dbf <a href="#">↗</a>	📅 5 minutes ago	
✗ DevOps_Test	Fixed	→ #10 failed	⌚ 2 min 16 sec	⊙
⊙ OUF		→ e8f271e <a href="#">↗</a>	📅 16 minutes ago	
✗ DevOps_Test	Adding New Skill	→ #9 failed	⌚ 2 min 28 sec	⊙
⊙ OUF		→ d75daad <a href="#">↗</a>	📅 15 minutes ago	
✗ DevOps_Test	make it fail	→ #8 failed	⌚ 2 min 16 sec	⊙
⊙ OUF		→ 3afbd28 <a href="#">↗</a>	📅 19 days ago	
✓ DevOps_Test	Travis notification last	→ #7 passed	⌚ 2 min 44 sec	⊙
⊙ OUF		→ 6c3588b <a href="#">↗</a>	📅 19 days ago	
✗ DevOps_Test	commenting out unittest	→ #6 failed	⌚ 2 min 15 sec	⊙
⊙ OUF		→ deea19a <a href="#">↗</a>	📅 19 days ago	
✓ DevOps_Test	added new skill for jarvis	→ #5 passed	⌚ 2 min 41 sec	⊙
⊙ OUF		→ c394af2 <a href="#">↗</a>	📅 19 days ago	
✓ DevOps_Test	Monitor	→ #4 passed	⌚ 2 min 37 sec	⊙

A dashboard showcasing the status of each build