

See how we contribute to an AI
project live,

...

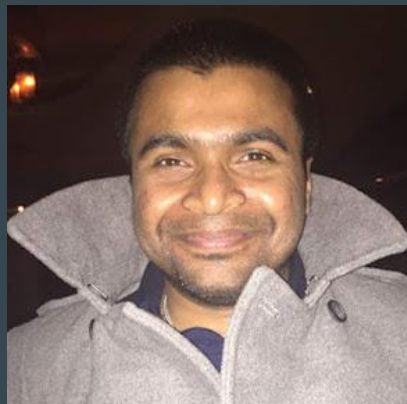
and *you* can do the same!

by Mani Sarkar *and* Yugo Sakamoto

26th May 2022

hashtag:
#aichatbot

About Mani



Mani Sarkar

[More about me](#)

Senior Software, Data,
ML Engineer

Java / JVM

Cloud / Infra /
DevOps

Polyglot developer

LJC, Devoxx,
developer communities

Code quality, testing,
performance, DevOps, deep
affinity for AI/ML/DL, NN...

Strengthening teams and
helping them *accelerate*

JCP member, F/OSS projects:
[@adoptopenjdk](#) [@graalvm](#)
[@truffleruby](#)

Java Champion, Oracle Groundbreaker Ambassador,
Software Crafter, Blogger, Speaker

[@theNeomatrix369](#) | [@ymoto](#)

About Yugo



Yugo Sakamoto

[More about me](#)

Software Architect

Helping web developers
design better architectures
and grow in their team

Web Application
Full-stack technologies

Java, C#, JavaScript

Microservices, Event-driven
Architecture, Architecture
Patterns, System Design

Writer, Speaker, Tech lead, Mentor

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You're going to this event!

Thursday, May 26, 2022

Chatbot Conversations—Live Coding!



Hosted By
Eyal W. and Mani S.



Details

See how we contribute to an AI project live, and you can do the same!

AI has become the new cool kid and making the first step with AI projects can be challenging. To help anyone have fun starting AI on open source, we've created the

THU, MAY 26 · 11:00 PM BST

Chatbot Conversations—Live Coding!

Organizer tools ▾



AI for Enterprise Virtual User Group
Public group



Thursday, May 26, 2022, 11:00 PM to
Friday, May 27, 2022, 12:30 AM BST
[Add to calendar](#)



Online event
<https://www.airmeet.com/e/e8f52010-db09-11ec-8fbb-9bb2f633dc7a>

[Report this event](#)

You're going!
[Edit RSVP](#)

[Share](#)

Yes, you are
at the right
event!

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Agenda

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About the talk

- *Thanks to organisers & audience*
- *Introduction*
- *Live / hands-on*
- *Summary, Conclusion, Resources*
- *Thanks to organisers & audience*
- *Q&A*

Presentation slides: *live*

<https://bit.ly/ai-chatbots-project>



Thank You!

- *AI for Enterprise Virtual User Group & team*, for organising this session, and giving me a chance to present at this forum
- And to “**you**”, for sparing your valuable time and trusting me

Disclaimer

- *YMMV*
- Might be untested, and/or have **inaccuracies**
- Sharing our **learnings** over the past years
- **Sharing ideas** and **experiences**
- We will be mostly trying to do practical things in this hands-on presentation

Introduction

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github.com/neomatrix369/chatbot-conversations

README.md

Chatbot conversations

License Apache 2.0

java 8 | 11

powered by GraalVM

powered by Helidon

powered by Quarkus

python 3.6 | 3.7 | 3.8

powered by Flask

powered by AI Models (NLP) Eliza | RoBERTa

docker pulls 28

docker pulls 91

141 issues

This project demonstrates a number of concepts:

- NLP (or a simulation of it, using [Eliza](#))
- NLP (or a simulation of it, using [Roberta](#))
- Chatbot interactions (using REST API)

Getting Started

Clone repository

```
git clone https://github.com/neomatrix369/chatbot-conversations.git  
  
cd chatbot-conversations
```

Packages

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

Contributors 3

neomatrix369 mani

yugoccp

dependabot[bot]

Java 66.3%

Python 4.7%

Dockerfile 2.1%

Shell 23.5%

HTML 3.4%

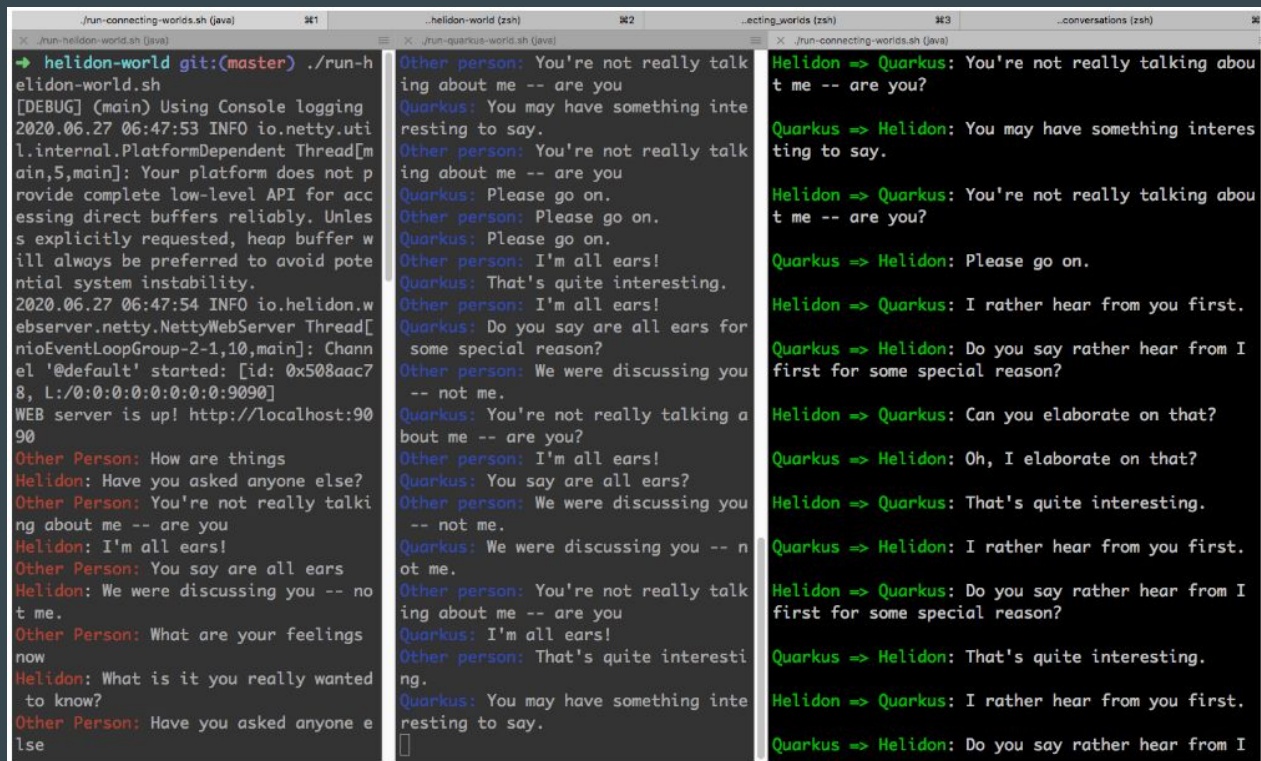
<https://github.com/neomatrix369/chatbot-conversations>

- Communication between three apps via a central app
- Flexibility to add more chatbots
- Ability to change the models used in place of the existing ones

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Chatbot conversations: an experiment to see what happens when two or more NLP Models start talking to each other. Do they make interesting conversations?

When they are chatting to each other?



The image shows four terminal windows side-by-side, illustrating a chat conversation between two Java applications: Helidon and Quarkus. The windows are titled as follows:

- Window 1 (Left):** `./run-connecting-worlds.sh (java)`. It shows the startup of the Helidon web server, including debug logs and the message "WEB server is up! http://localhost:9090".
- Window 2:** `..helidon-world (zsh)`. It shows the Helidon application sending messages to the Quarkus application.
- Window 3:** `..ecting-worlds (zsh)`. It shows the Quarkus application receiving messages from the Helidon application.
- Window 4 (Right):** `..versations (zsh)`. It shows the Quarkus application sending messages back to the Helidon application.

The chat conversation is as follows:

Helidon => Quarkus: You're not really talking about me -- are you?

Quarkus => Helidon: You may have something interesting to say.

Helidon => Quarkus: You're not really talking about me -- are you?

Quarkus => Helidon: Please go on.

Helidon => Quarkus: I rather hear from you first.

Quarkus => Helidon: Do you say rather hear from I first for some special reason?

Helidon => Quarkus: Can you elaborate on that?

Quarkus => Helidon: Oh, I elaborate on that?

Helidon => Quarkus: That's quite interesting.

Quarkus => Helidon: I rather hear from you first.

Helidon => Quarkus: Do you say rather hear from I first for some special reason?

Quarkus => Helidon: That's quite interesting.

Helidon => Quarkus: I rather hear from you first.

Quarkus => Helidon: Do you say rather hear from I

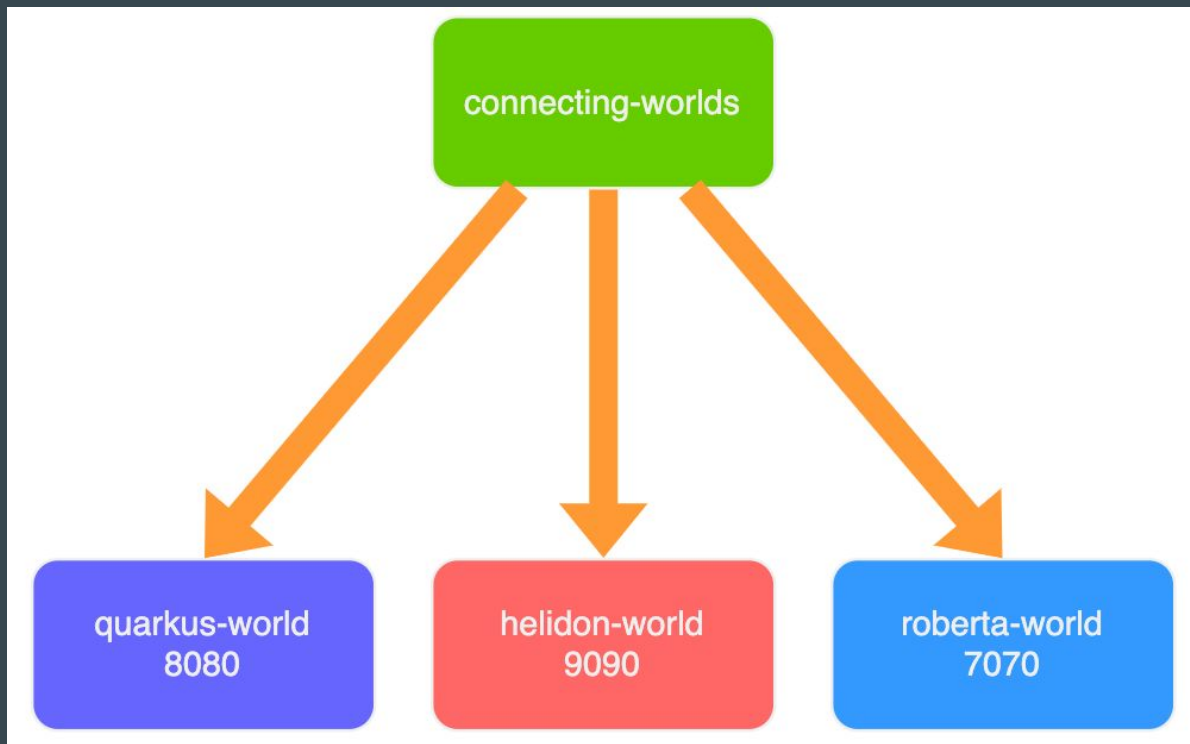
How to run the project?

```
$ git clone https://github.com/neomatrix369/chatbot-conversations.git  
$ cd chatbot-conversations  
$ ./docker-runner.sh --runContainer
```

Prerequisite: Docker version 19 or above

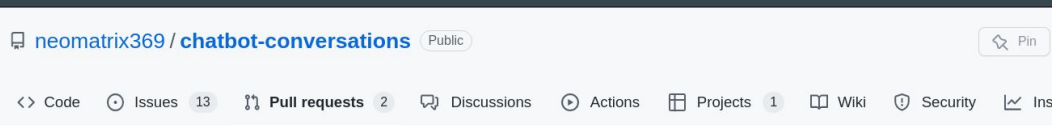
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How does it work?



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Active Pull Requests



Cloud: adding the deployment to the cloud folder #26

Draft neomatrix369 wants to merge 1 commit into `master` from `deploy-onto-the-cloud`

Conversation **0** Commits **1** Checks **0** Files changed **8**



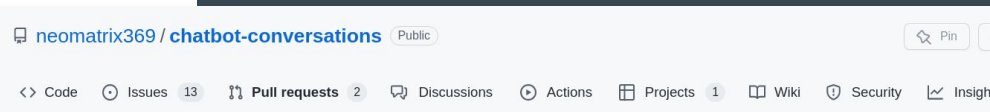
neomatrix369 commented 18 days ago • edited

Implementing #21, this implementation deploys to OCI. This PR covers reviewing, learning, testing the improving the implementation collaboratively (if issues are found).

Raise all questions and issues as comments in the code and/or PR discussion body.

TODO:

- ☐ Test this implementation on a sub-folder
- ☐ try to follow the instructions in the README
- ☐ let's also try to examine if every block of the README is necessary and/or can be improved for clarity
- ☐ The work so far needs further testing and generification for a user who may have their own docker images. Currently, there might be hard-coding of the `neomatrix369` user name.
- ☐ At the moment the final stage of the steps fails, i.e. running of the docker container on the cloud ins have to investigate and fix this



Change chatbots to use websocket #27

Open yugoccp wants to merge 11 commits into `master` from `feature/websocket`

Conversation **1** Commits **11** Checks **0** Files changed **54**



yugoccp commented 2 days ago

Collaborator Tip ...

- Changed quarkus-world to interact using websockets
- Changed helidon-world to interact using websockets
- In progress change roberta-world to use websocket
- In progress change docker-runner.sh to run websocket solution

1

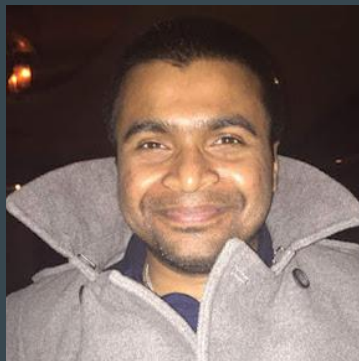
Two active PRs that are being worked on

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Live / hands-on

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Walkthrough of the active pull requests by Mani & Yugo



Mani shows his TF/OCI work and tries to fix the PR
(~15 mins)

<https://github.com/neomatrix369/chatbot-conversations/pull/26>

When they are chatting on the cloud (OCI)

```
Roberta => Quarkus: Hello?

Other world: Hello
Helidon: Hi. What seems to be your problem?
Roberta => Helidon: Hello?

Other world: Hi. What seems to be your problem?
Roberta: Hi. What to solve your problem? [confidence: 20.311%]

127.0.0.1 - - [26/May/2022 19:32:39] "GET /send?message=Hi.%20What%20seems%20to%20be%20your%20problem? HTTP/1.1" 200 -
Helidon => Roberta: Hi. What seems to be your problem?

Other world: Hi. What seems to be your problem
Quarkus: What do you think?
Helidon => Quarkus: Hi. What seems to be your problem?

Other world: Hi. What to solve your problem
Helidon: What do you think?
Roberta => Helidon: Hi. What to solve your problem?

Other world: What do you think?
Roberta: What do think? [confidence: 67.147%]

127.0.0.1 - - [26/May/2022 19:32:51] "GET /send?message=What%20do%20you%20think? HTTP/1.1" 200 -
Helidon => Roberta: What do you think?

Other world: What do you think
Quarkus: What is it you really wanted to know?
Helidon => Quarkus: What do you think?

Other world: What is it you really wanted to know
Helidon: What is it you really wanted to know?
Quarkus => Helidon: What is it you really wanted to know?
```

Running inside a
[docker container](#) on
the cloud VM

How long does it take to run the app on the cloud?

Provision the infrastructure: ~3 minutes

**Setup the environment for the app (setting-up VM,
downloading docker image, etc):** ~7 minutes

Run the app (downloading model): ~1 minute

Rollback and cleanup the infrastructure: ~1 minutes

Total time: ~12 minutes

Pause
(few minutes)



Yugo shows his websocket work and tries to run it
(~15 mins)

<https://github.com/neomatrix369/chatbot-conversations/pull/27>

When they are chatting with Websockets

```
#####  
## CONNECTING-WORLDS WEBSOCKET MODE ##  
#####  
2022-05-26 01:08:08,289 INFO [io.quarkus] (Quarkus Main Thread) connecting-worlds 1.0.0-SNAPSHOT on JVM (powered by Quarkus 2.8.3.Final) started in 6.369s. Listening on: http://localhost:11800  
2022-05-26 01:08:08,290 INFO [io.quarkus] (Quarkus Main Thread) Profile dev activated. Live Coding activated.  
2022-05-26 01:08:08,293 INFO [io.quarkus] (Quarkus Main Thread) Installed features: [cdi, smallrye-context-propagation, vertx, websockets, websockets-client]
```

```
--  
Tests paused  
quarkus: How are things?  
  
quarkus is alone in the room...  
  
helidon: How are things?  
  
helidon => quarkus: How are things?  
  
quarkus: Have you asked anyone else?  
  
quarkus => helidon: Have you asked anyone else?  
  
helidon: You're not really talking about me — are you?  
  
helidon => quarkus: You're not really talking about me — are you?  
  
quarkus: I'm all ears!  
quarkus => helidon: I'm all ears!  
  
helidon: You say are all ears?  
  
helidon => quarkus: You say are all ears?  
  
quarkus: We were discussing you — not me.  
quarkus => helidon: We were discussing you — not me.
```

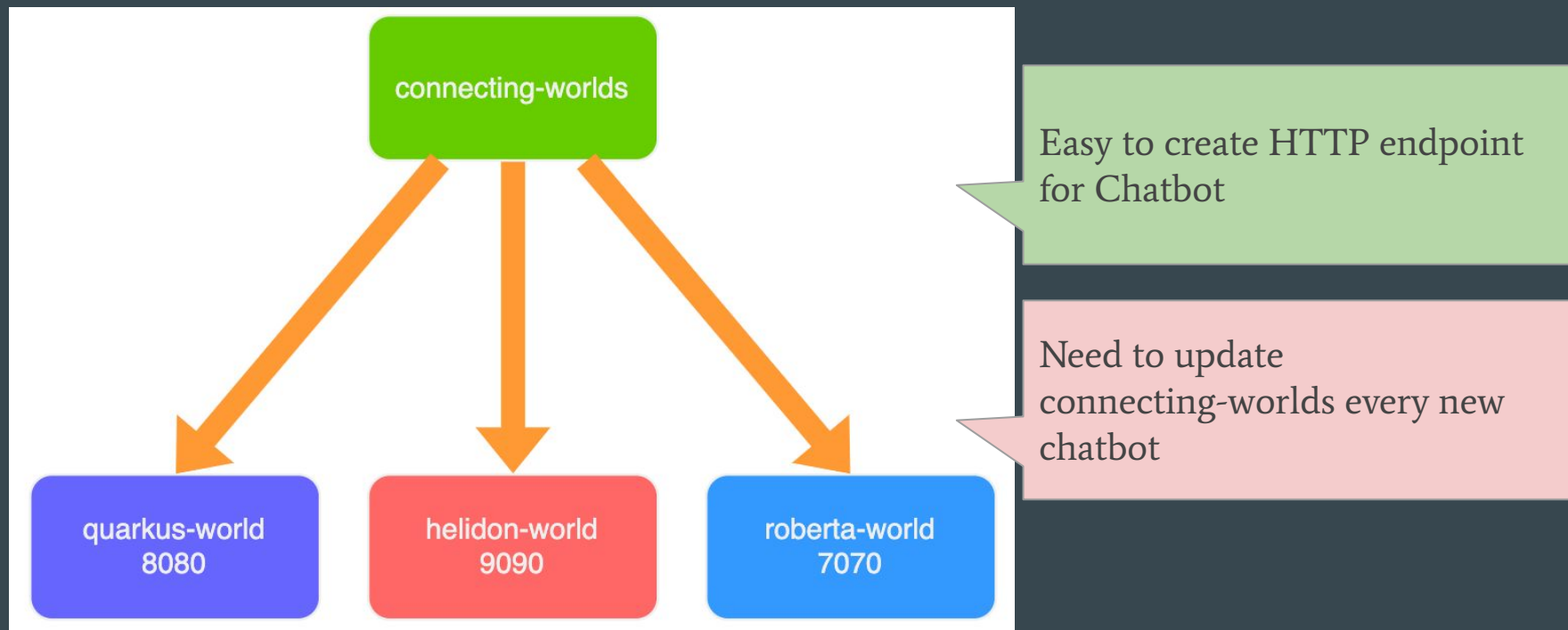
```
#####  
## QUARKUS-WORLD WEBSOCKET MODE ##  
#####  
Send greetings to chat room...  
2022-05-26 01:08:58,423 INFO [io.quarkus] (Quarkus Main Thread) quarkus-world 1.0.0-SNAPSHOT on JVM (powered by Quarkus 2.8.3.Final) started in 12.642s. Listening on: http://localhost:8080  
2022-05-26 01:08:58,425 INFO [io.quarkus] (Quarkus Main Thread) Profile dev activated. Live Coding activated.  
2022-05-26 01:08:58,427 INFO [io.quarkus] (Quarkus Main Thread) Installed features: [cdi, resteasy, smallrye-context-propagation, vertx, websockets, websockets-client]
```

```
Other world: How are things?  
  
Quarkus: Have you asked anyone else?  
  
Other world: You're not really talking about me — are you?  
  
Quarkus: I'm all ears!  
Other world: You say are all ears?  
  
Quarkus: We were discussing you — not me.  
Other world: What are your feelings now?  
  
Quarkus: What is it you really wanted to know?  
  
Other world: Have you asked anyone else?  
  
Quarkus: Oh, I asked anyone else?  
  
Other world: Can you elaborate on that?  
  
Quarkus: Oh, I elaborate on that?  
  
Other world: Do you say elaborate on that for some special reason?  
  
Quarkus: You're not really talking about me — are you?
```

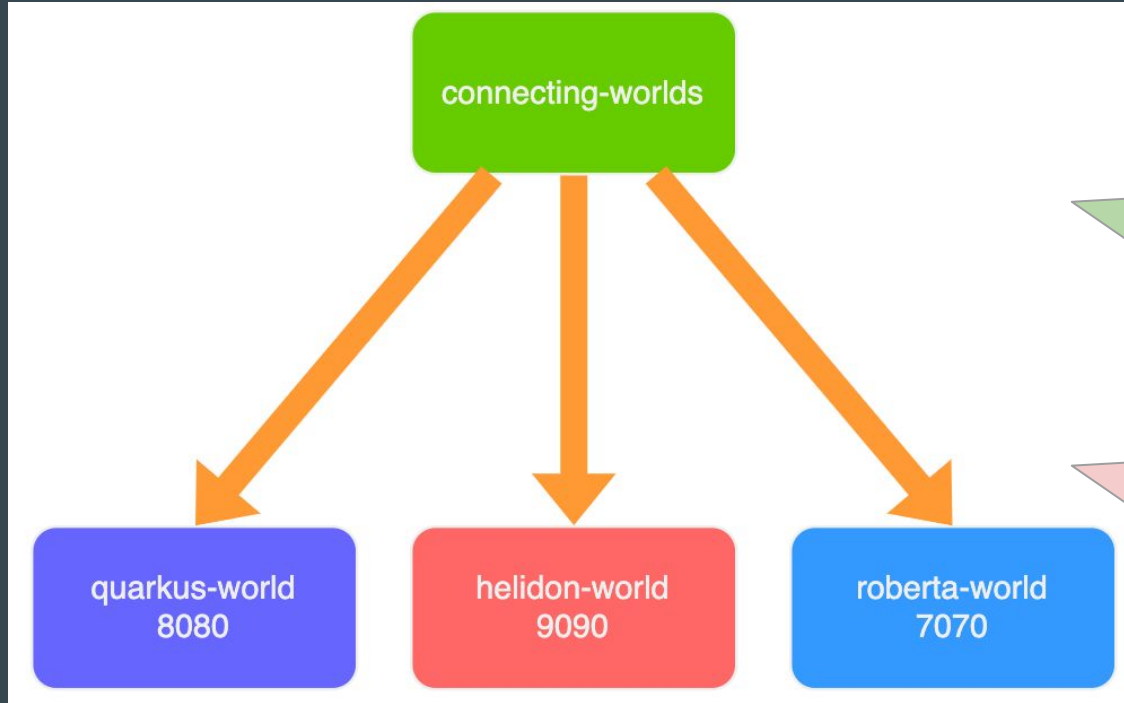
```
#####  
## HELIDON-WORLD WEBSOCKET MODE ##  
#####  
Connected!  
Send greetings to chat room...  
2022-05-26 01:09:04 INFO io.helidon.common.LogConfig Thread[main,5,main]: Logging at initialization configured using classpath: /logging.properties  
2022-05-26 01:09:06 INFO io.helidon.common.HelidonFeatures Thread[features-thread,5,main]: Helidon SE 2.5.0 features: [Config, Health, Metrics, WebServer]  
2022-05-26 01:09:07 INFO io.helidon.webserver.NettyWebServer Thread[nioEventLoopGroup-2-1,0,main]: Channel 'default' started: [id: 0xddb55858, L:/0:0:0:0:0:0:0:0:9090]  
WEB server is up! http://localhost:9090/greet  
Other world: Have you asked anyone else?  
Helidon: You're not really talking about me — are you?  
Other world: I'm all ears!  
Helidon: You say are all ears?  
Other world: We were discussing you — not me.  
Helidon: What are your feelings now?  
Other world: What is it you really wanted to know?  
Helidon: Have you asked anyone else?  
Other world: Oh, I asked anyone else?  
Helidon: Can you elaborate on that?  
Other world: Oh, I elaborate on that?  
Helidon: Do you say elaborate on that for some special reason?  
Other world: You're not really talking about me — are you?  
Helidon: I rather hear from you first.  
Other world: Do you say rather hear from I first for some special reason?  
Helidon: Do you say first for some special reason for some special reason?  
Other world: Oh, I say first for some special reason for some special reason?  
Helidon: Can you elaborate on that?  
Other world: What are your feelings now?  
Helidon: Have you asked anyone else?  
Other world: You're not really talking about me — are you?  
Helidon: I'm all ears!  
Other world: That's quite interesting.  
Helidon: You may have something interesting to say.  
Other world: You're not really talking about me — are you?  
Helidon: Please go on.  
Other world: You may have something interesting to say.  
Helidon: You're not really talking about me — are you?  
Other world: I rather hear from you first.  
Helidon: That's quite interesting.
```

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Connecting worlds with HTTP



Connecting worlds with Websocket



Chatbots connects on-the-fly to connecting-worlds websocket server
Easy to add real user to the chat

Chatbots need to implement websocket client

Summary

Summary

- *We saw what the project is about*
- *Walked through how to run it on our machine*
- *Saw Pull Requests been worked on - **live demo***
- *How the different components talk to each other?*
- *We can build new components and add to the mix*

Come and bring your chatbots and add to the party!

Conclusion

Conclusion

We can run **polyglot*** applications that serve NLP models inside a docker container and then deploy it to any cloud service (i.e. OCI - Oracle Cloud Infra, AWS, GCP, etc...). These applications communicate using **REST endpoints** or **Websockets** and created using **Java** and **Python** based frameworks like Quarkus, Helidon, Flask, etc...

Easy to install, easy to run, fun to play with and contribute to!

polyglot - java, python, others languages*

Thank You!

- *AI for Enterprise Virtual User Group & team*, for organising this session, and giving me a chance to present at this forum
- And to “**you**”, for sparing your valuable time and trusting me

Resources

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Resources to follow

- Project Github repo:
<https://github.com/neomatrix369/chatbot-conversations>
- Docker image: [neomatrix369](#) | [yugoccp](#)
- [Awesome AI/ML/DL](#)
- [Awesome AI/ML/DL: NLP Resources](#)
- [Awesome AI/ML/DL: Java Resources](#)

Previous talks

- My most recent presentations [can be found here](#)
- Bi-monthly [The Out-of-the-box developer 2022](#) series (videos and slides)
- First talk in 2022: [Studying the limitations of statistical measurements](#)
- My talk last in 2021 was [Looking into Java ML/DL libraries: Tribuo and DeepNetts](#)
- [Tribuo: an introduction to a Java ML Library](#)
- [“nn” things every Java developer should know about AI/ML/DL](#)
- [Naturally, getting productive, my journey with Grakn and Graql](#)
- [Do we know our data as well as our tools?](#)
- [Java N.n: What to know? How to learn?](#)
- Some of my other talks a can be found [here](#) and [here](#) (and others on [Slideshare](#))

Contact and keep in touch

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Q & A

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