How to Think like a Python Programmer Day #1

FIRST THINGS FIRST.

KEY CONCEPTS

SETUP CLOUD DEV ENVIRONMENT.

Agenda

1. You Are the Boss
2. Converting a Problem into Code
3. Programming Constructs, Dataflows, Functions and Classes/Objects
4. Setup a Cloud Python Development Environment
5. Create your First Program

You Are the Boss – First Thing

Have you ever asked someone to do something and they did the wrong thing ? Why ?

- *Did they not understand you ?*
- *Did they just want to do their own thing ?*
- *Maybe you needed to know their language ?*

<u>Guess what computers let you be a real boss !</u>

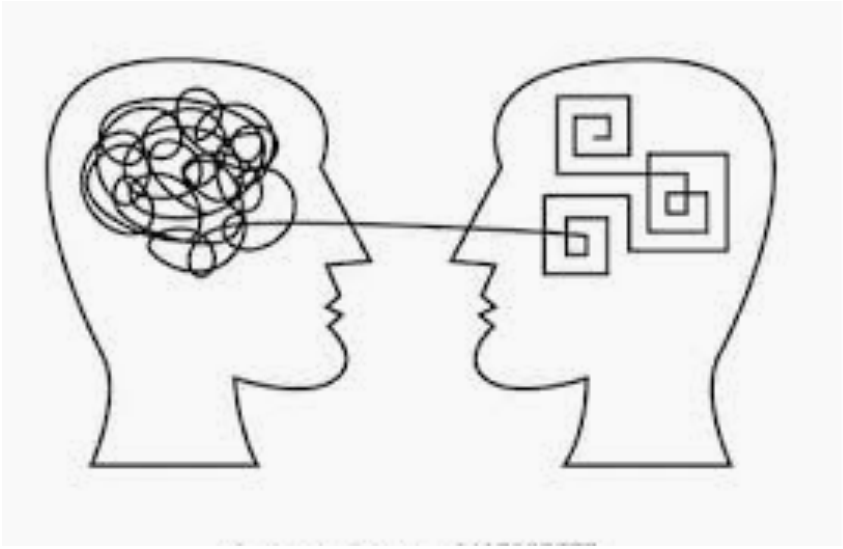
A computer will always do what tell it . You just need to learn a few words/commands and yes you can get things done your way.

Converting a Problem into Code – Recipe Example.

Thinking like a programmer requires that you break down a problem into detailed steps, like a cooking recipe. NOTE: The order of ingredients matters. Turn tangled thoughts into a ordered list of functions.

Example:

1. **Buy ingredients**
2. **Organize ingredients**
3. **Put first all ingredients in bowl**
4. **Mix ingredients**
5. **Pore in Pan**
6. **Put in Oven**
7. **Set timer for oven**
8. **Take out**
9. **Let Cool.**
10. **Serve**

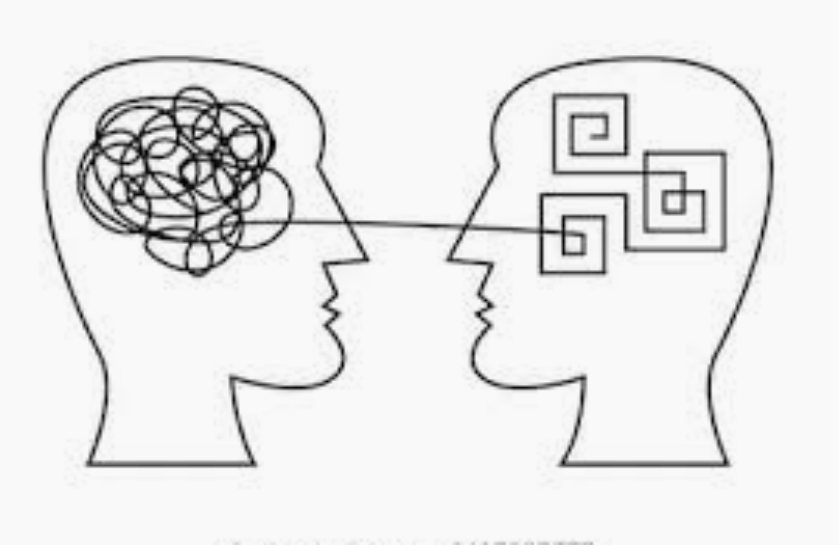


Converting a Problem into Code – Code Example.

Thinking like a programmer requires that you use data and process that data and perform some output if needed.

Example:

1. **load a file with test data**
2. **find all names that start with joe and get their emails**
3. **store names in new list**
4. **send email to all joes**



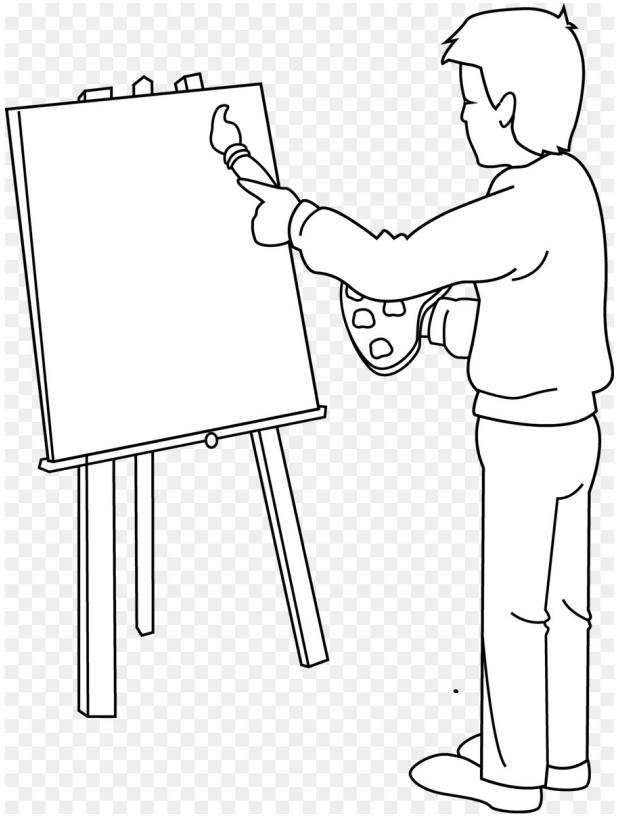
Software Design is the main thing.

Thinking like a programmer requires that think like a designer.

Think like how a person builds a building or creates a work of art.

You choose your problem to solve, goal, tools and more.

Software developers are classified as creative artists and the programing language you choose like Python is your canvas.



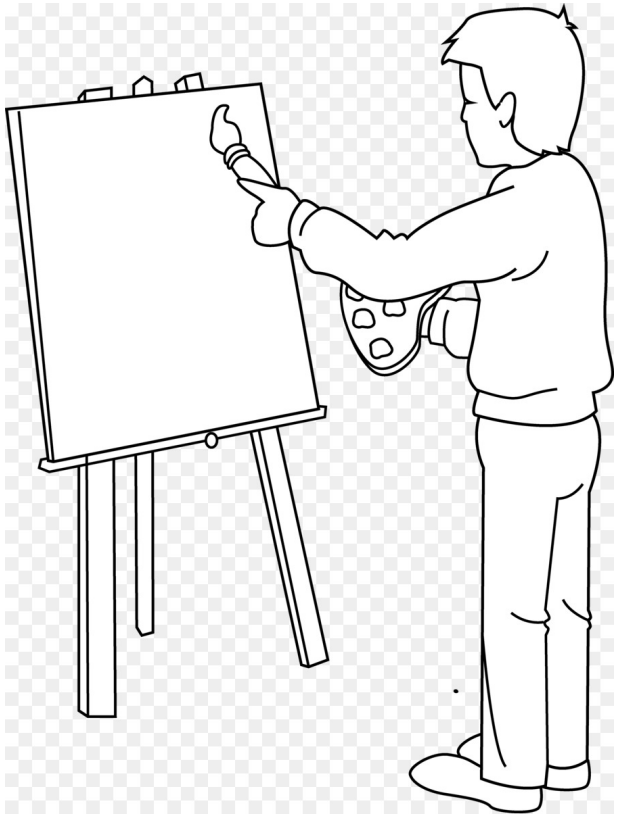
Software Design is the main thing.

Thinking like a programmer requires that you define the problem correctly.

Determine the users, or interfaces.

Defining whom or what problem you are actually solving.

Software developers are classified as creative artists and the programing language you choose like Python is your canvas.

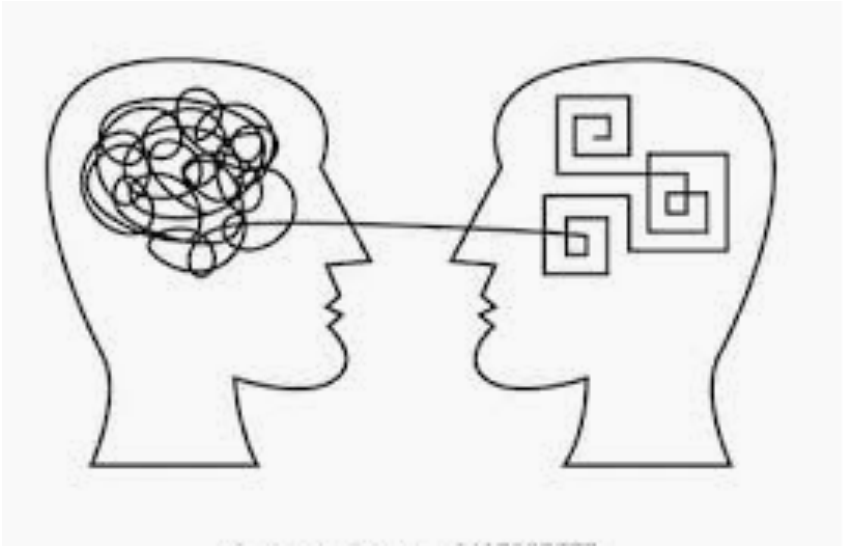


Programming Three key Actions Things

Thinking like a programmer requires that you understand how to tell a computer to do something.

A computer only does a few basic things:

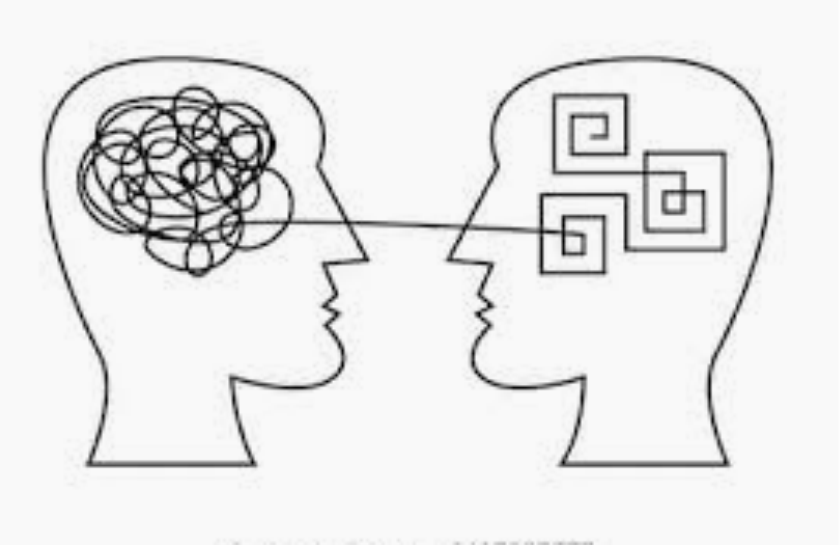
1. **Take input**
   - The input can be from a keyboard, , file, device like a camera or microphone or some other electronic device.
2. **Process input**
   - The process can be mathematical operations like addition and multiplication, conditional if/then, looping, data conversion or some system call.
3. **Output data**
   - The output can be to screen, printer, another device or process.



Programming Constructs, Dataflows, Functions and Classes/Objects

Thinking like a programmer requires that you understand a few key Python programming constructs like the following:
NOTE: We will cover these in detail in future classes.

1. Data types, Data Structures, List, Tuples and Data storage
2. Key Python Operations
   - Math
   - Logical , If/Then, While, For
   - System Calls, Networking, Database/File CRUD. etc.
   - Statements
   - Expressions
3. Functions, Classes/Objects
4. Design Patterns



Thinking like Programmer Exercise #1 with Sticky Notes

CREATE ALL STEPS FOR MAKING A CAKE.

WRITE ONE STEP ON EACH STICKY NOTE.

EXAMPLE:

1. First choose recipe,
2. Buy ingredients,
3. Choose cooking tools,
4. etc...

Let's Setup your environment.

A WALKTHROUGH WE WILL GUIDE YOU

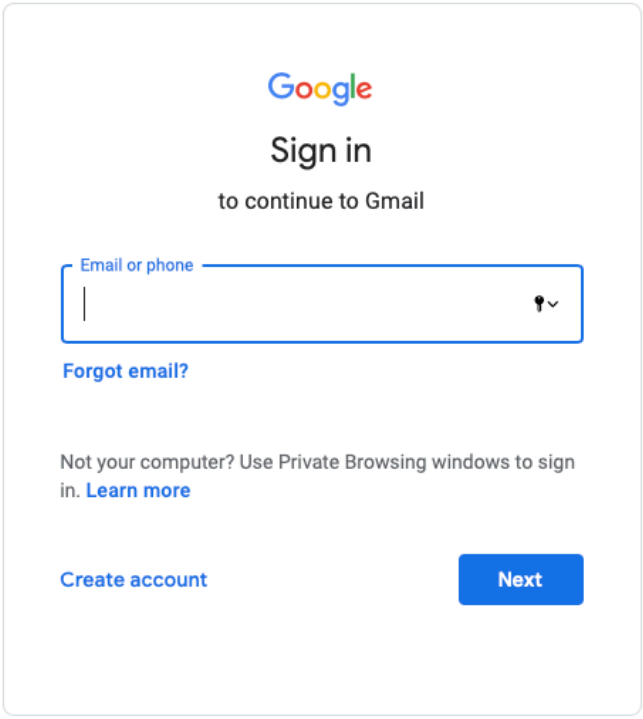
Setup a Cloud Python Development Environment. - Google GMAIL

Open Your Web Browser Chrome/IE/Firefox and create a Gmail Account.

Goto:

https://accounts.google.com

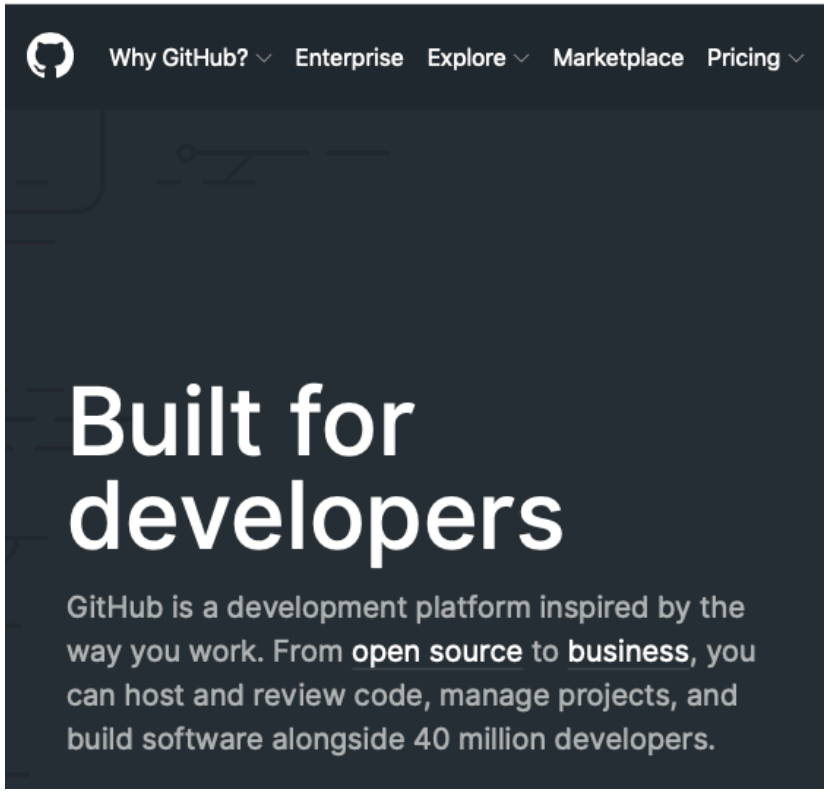
and Create Acount.



Setup a Cloud Python Development Environment. - GitHub

Open Your Web Browser Chrome/IE/Firefox and create a GitHub Account using your Gmail Account.

Goto: https://github.com and Signup.



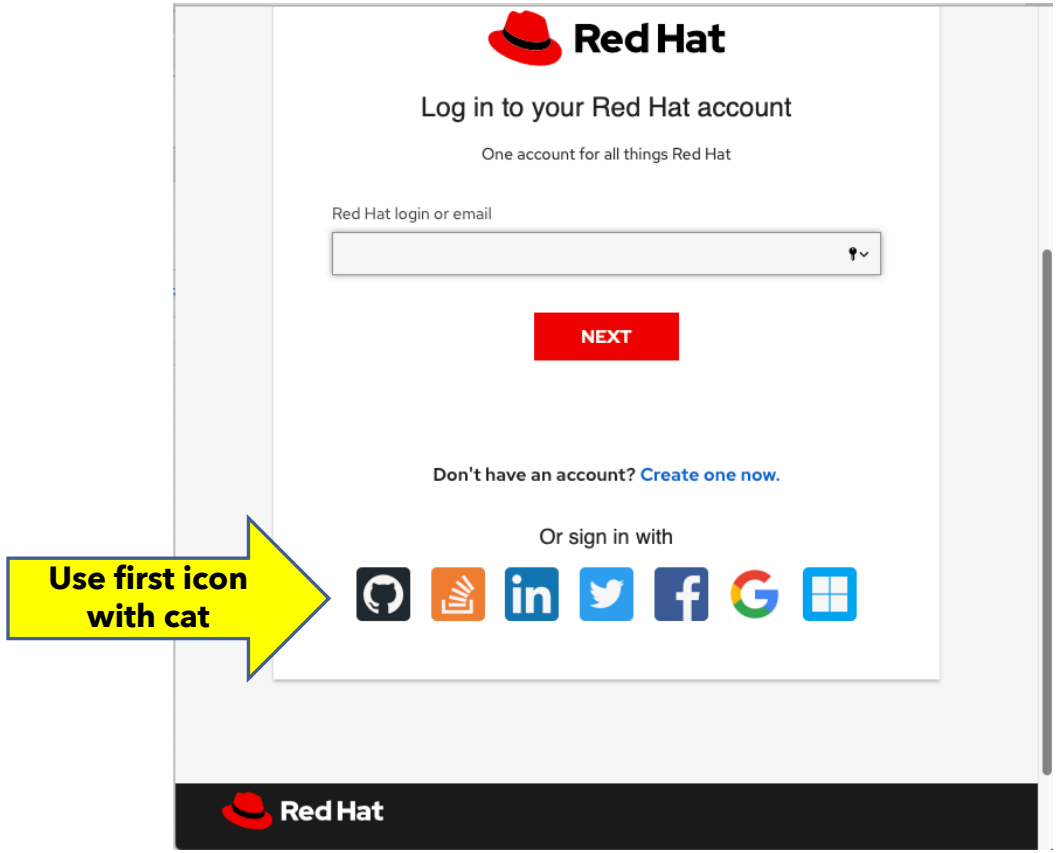
Setup a Cloud Python Development Environment. - EclipseChe

https://che.openshift.io/

Open Your Web Browser Chrome/IE/Firefox and create an Eclipse Che Account using your GitHub account

URL:

https://che.openshift.io/



Setup a Cloud Python Development Environment. - EclipseChe

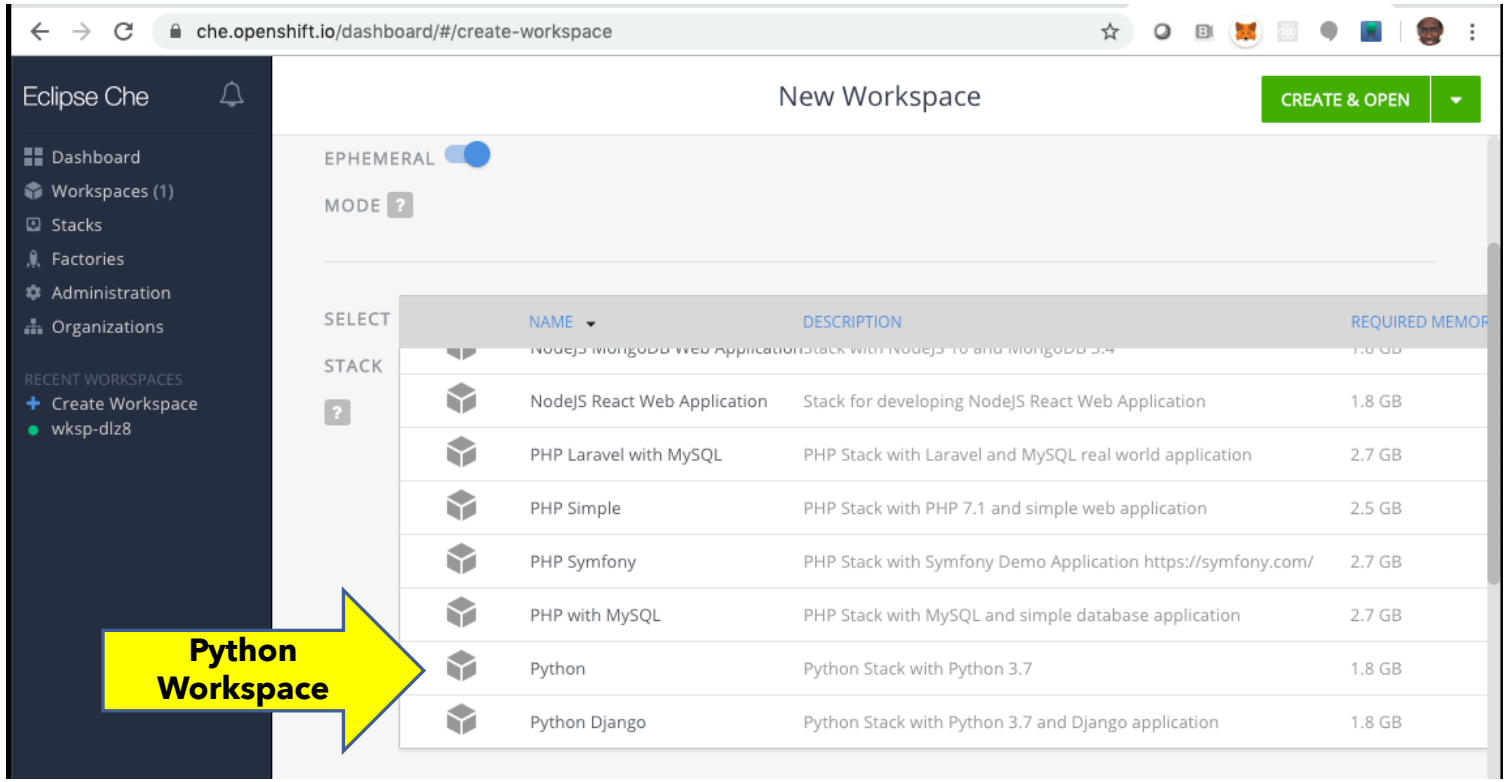
https://che.openshift.io/dashboard/#/create-workspace

Next Create Python Dev Environment

URL:

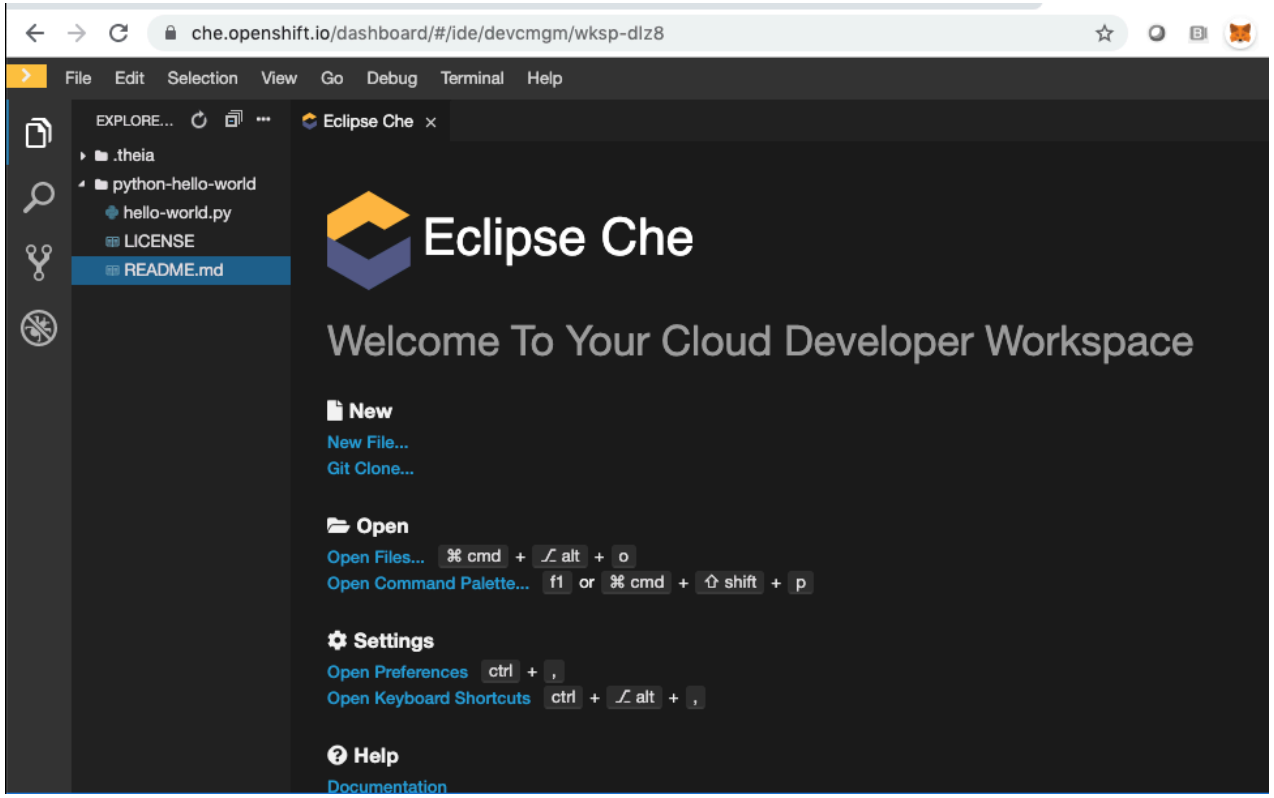
https://che.openshift.io/dashboard/#/create-workspace

Note: your Gmail account will receive email when setup.



Open First Cloud Python Development Environment. - EclipseChe

https://che.openshift.io/dashboard



Run your first Cloud Python Development Environment. - EclipseChe

https://che.openshift.io/dashboard