

# Cloud Computing

Title: Cloud Based Compiler

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## Introduction

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Build cloud based web application that provides developer an interface which helps in code compilation, execution, analysis and also provides code optimisation related suggestion if required in code.

## Work Done

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1. Successfully integrated compilers at server side
2. Created service oriented architecture for Code Editor
3. Implemented authentication service for user SignIn / SignUp
4. Designed a database and integrated it with the system
5. Implemented file storage system – Users can store their code on cloud
6. Users can show their activity on their dashboard
7. Developed an optimization service

## Tools / Packages

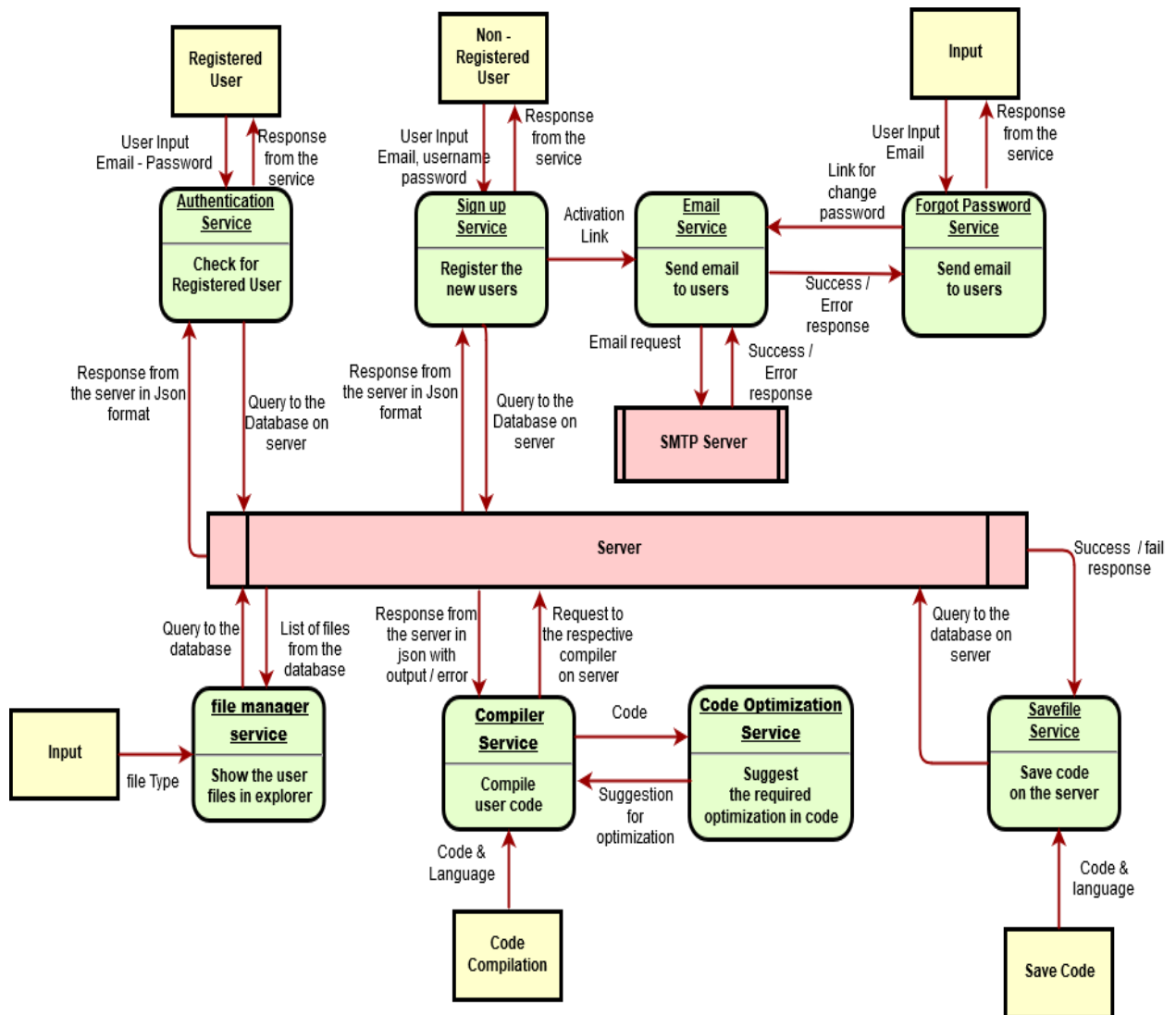
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- Front-end technology
  - i. HTML , CSS, Javascript
- Back-end technology
  - i. Python, Flask, Jinja
- Database
  - i. MySQL



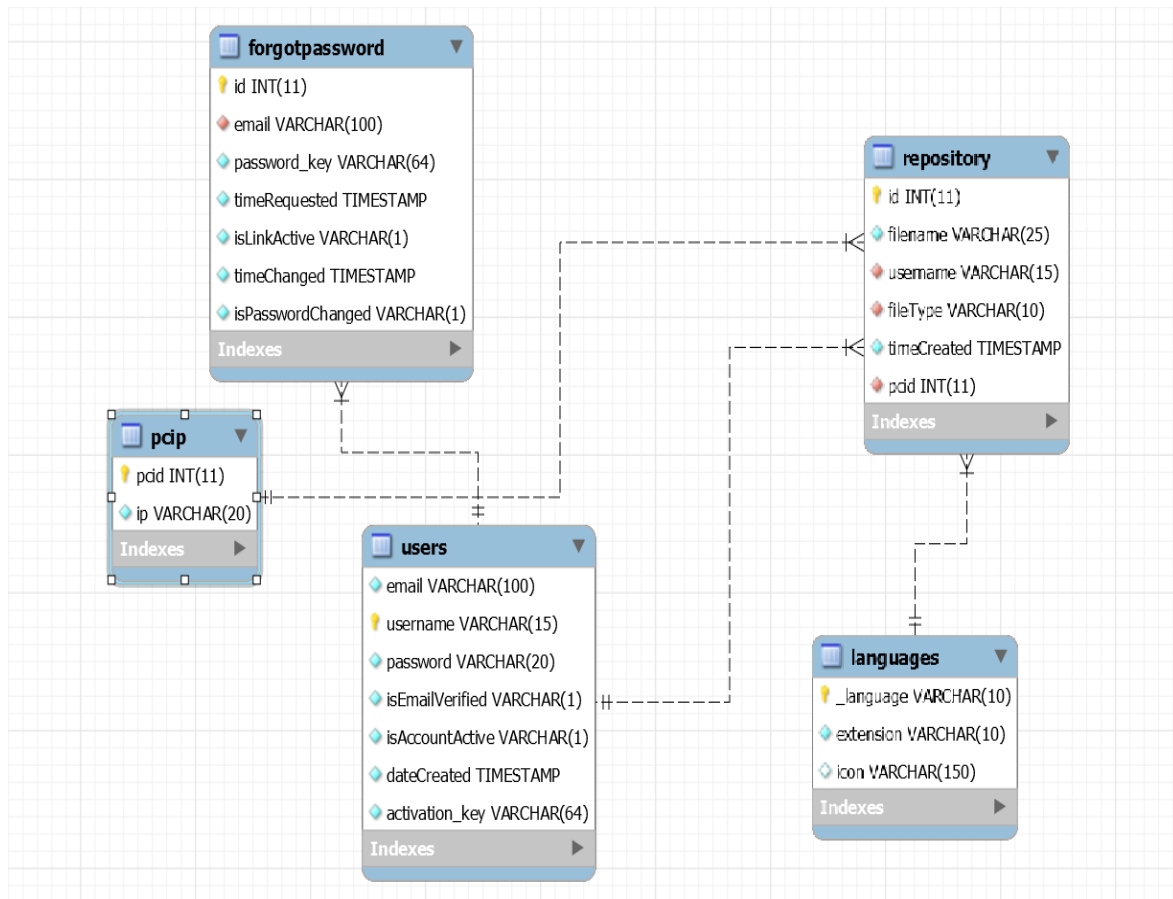
## Dataflow Diagram

- This diagram shows how data flows in the system





### Database Schema





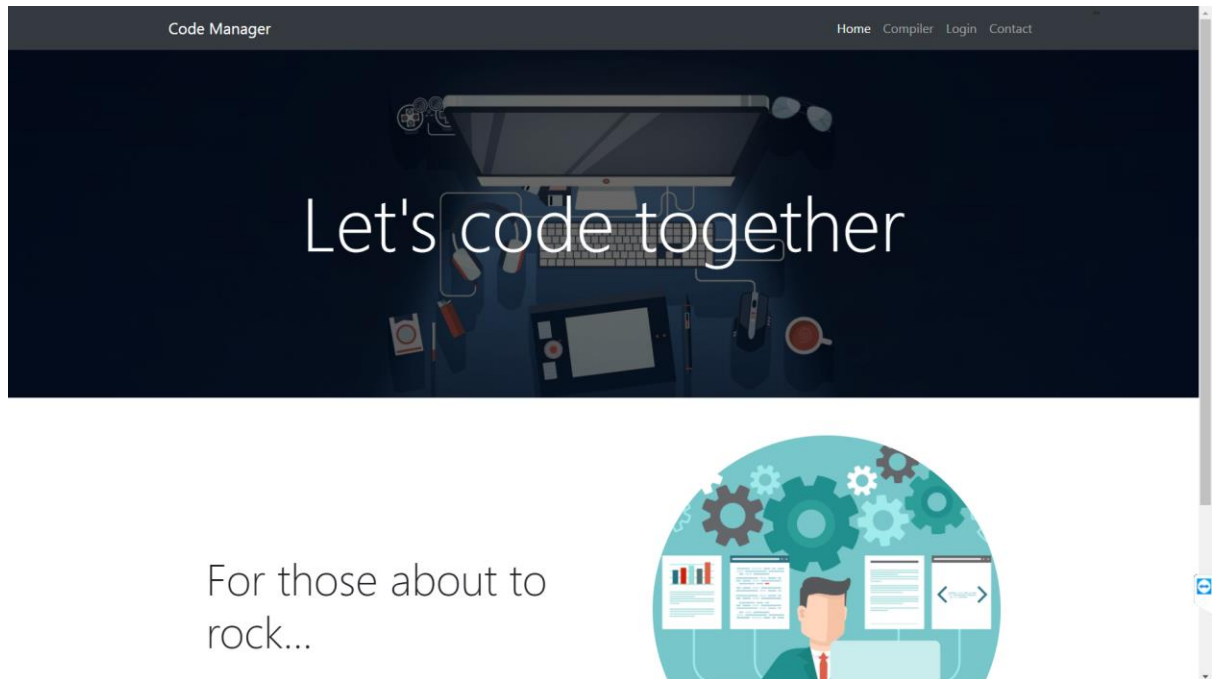
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## Screenshots

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- Home Screen



- Login Screen

**Code Manager**

Welcome to Code Manager. Please sign in to your account

Email Address

Password

**Sign in**

[Create an account](#) · [Forgot your password?](#)



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- Error based on user side input validation

localhost:8080 says:

Please enter a password

OK

## Code Manager

Welcome to Code Manager. Please sign in to your account

Sign in

[Create an account](#) · [Forgot your password?](#)

- Error based on server side validation

## Code Manager

Welcome to Code Manager. Please sign in to your account

Email id or password is wrong .

Sign in

[Create an account](#) · [Forgot your password?](#)



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- User need to verify the account before login by clicking the link sent to user's mail account

## Code Manager

Welcome to Code Manager. Please sign in to your account

Before Login Please verify your email account .

Sign in

[Create an account](#) · [Forgot your password?](#)

- Sign up screen

## Code Manager

Create your account

Create Account

[Already have an Account? Sign In](#) · [Forgot your password?](#)

By clicking sign in up, you agree to our [Terms of services & Policies](#).



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- Server side validation for sign up

## Code Manager

Create your account.

Email id is already registered .

Username is already registered .

Username

Email address

Password

Confirm Password

Create Account

Already have an Account? Sign In - Forgot your password?

By clicking sign in, you agree to our Terms of services & Policies.

- Forgotpassword Screen

## Code Manager

Lost your password? Please enter your email address. You will receive a link to create a new password.

Email address

Send Password Reset

Just remembered your password ? Go to Sign In



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- Userside validation for forgotpassword

localhost:8080 says:  
please enter email address

OK

## Code Manager

Lost your password? Please enter your email address. You will receive a link to create a new password.

Email address

Send Password Reset

Just remembered your password? Go to Sign In

- Link sent to user to activate account

The screenshot shows the Outlook Mail interface. On the left, the 'Folders' pane shows 'Inbox' with 2 items. The main pane displays a list of emails. The selected email is from 'CC Lab' with the subject 'Activate Your Account'. The email body contains the following text:

CL CC Lab <cloudcompiler@hotmail.com>  
Mon 10/16/2017 9:45 AM  
To: CC Lab (cloudcompiler@hotmail.com) &  
Click on the following link to activate your account!:  
<http://localhost:8080/activate?email=cloudcompiler@hotmail.com&id=a93428a533e3f77b8e8df328dd545bbc46e5689b14b9def6272068ed67f40720>

Below the email list, there is a 'Upgrade to Premium' button.





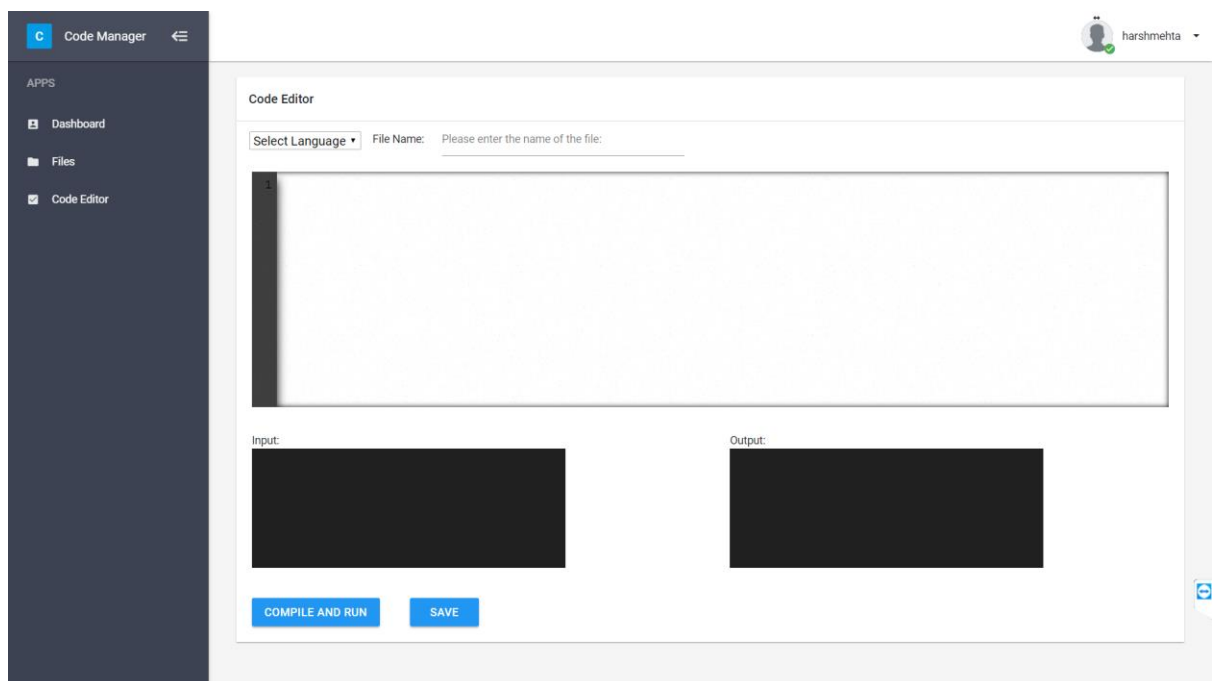
- After clicking the sent link

Congratulation..!

You have been successfully  
activated your account :-)

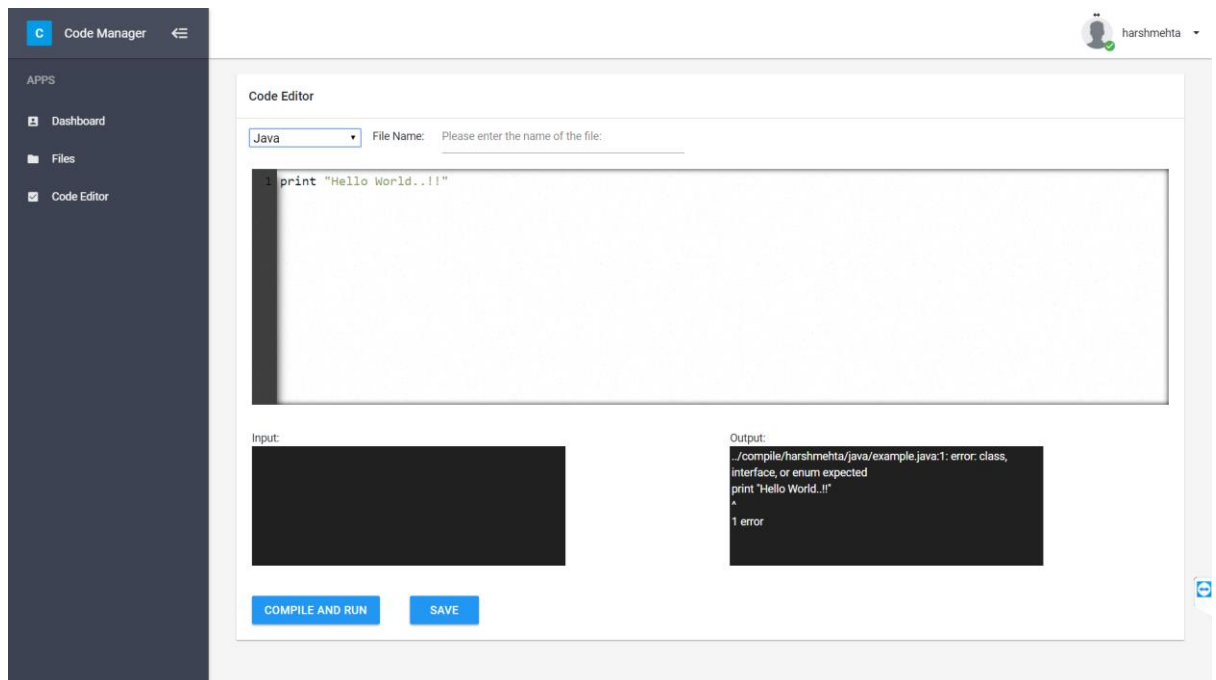
[Go To Login Page](#)

- Code Editor screen





- Compilation error is showing in output



- Successful compilation



Code Manager

APPS

- Dashboard
- Files
- ☒ Code Editor

Python2.7

File Name:

```
1 print "Hello World..!!"
```

Input:

Output:  
Hello World..!!

COMPILE AND RUN

SAVE

- Save file

Code Manager

APPS

- Dashboard
- Files
- ☒ Code Editor

Select Language

File Name:

```
1 print "Hello World..!!"
```

Input:

Output:  
Your code is saved successfully.

COMPILE AND RUN

SAVE

- File manager screen



C Code Manager

APPS

- Dashboard
- Files
- ☒ Code Editor

My Files > Documents

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Name	Type	Owner	Size	Last Modified
C	Folder	Harshmehta	Size	time
C++	Folder	Harshmehta	Size	time
Java	Folder	Harshmehta	Size	time
Python2.7	Folder	Harshmehta	Size	time

harshmehta

C Code Manager

APPS

- Dashboard
- Files
- ☒ Code Editor

My Files > Documents

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Name	Type	Owner	Size	Last Modified
abc	C	Harshmehta	Size	2017-10-26
bcd	C	Harshmehta	Size	2017-10-26
FirstFile	C	Harshmehta	Size	2017-10-27
Second File	C	Harshmehta	Size	2017-10-27
thirdfile	C	Harshmehta	Size	2017-10-27
hello_world	C	Harshmehta	Size	2017-10-29
Hello World	C	Harshmehta	Size	2017-10-29

harshmehta



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Code Manager

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APPS

Dashboard

Files



☒ Code Editor


harshmehta

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My Files > Documents

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Name	Type	Owner	Size	Last Modified
 cplusplus	Cpp	Harshmehta	Size	2017-10-26
 input	Cpp	Harshmehta	Size	2017-10-29



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Code Manager

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APPS

Dashboard

Files


☒ Code Editor


harshmehta

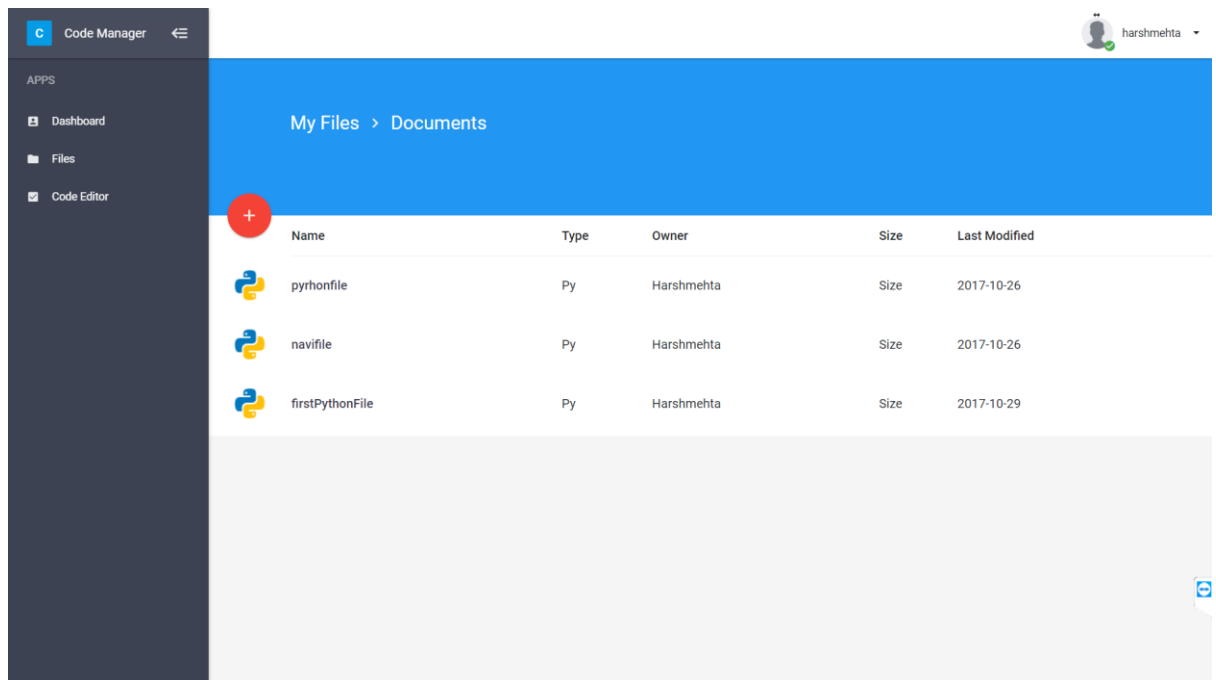
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My Files > Documents

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Name	Type	Owner	Size	Last Modified
 javafile	Java	Harshmehta	Size	2017-10-26





## Future Work

- Code Analysis: Our IDE will show the total memory used by user's program and total computational time of it. For finding total memory, we are going to work with `proc` - a file system at kernel level mode that contain the process information. Among the various information we are interested in size of data, bss, stack and virtual memory size.
- Steps to be follow
  - As soon as user submit his code, a program at server side will automatically fetch the process ID (pid) of the newly generated process
  - For almost every process running in the system, there is a directory created in `/proc/`. The directory name is the process id and it contains several useful files which convey important information. The two main files of our concern are `/proc/[pid]/status` and `/proc/[pid]/statm`
  - From, these two files we get memory usage in form of files, and each page is of 1KB we multiply total pages and page size and calculate the memory usage.