Outreachy, 2020

Project Proposal

Humanitarian **O**pen**S**tree**M**ap **T**eam

To: Humanitarian OpenStreetMap Team

Project Title: Build a slackbot router

Technologies Used: NodeJS, AWS Lambda

Applicant Particulars:

Name: Ankita Kashyap
College Enrollment Number: 19612003
College: IIT Roorkee, Uttarakhand, India

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SYNOPSIS

This proposal mentions the **deliverables** for the project and the way of achieving them. An attempt has been made to walk the reader through the various **software develpoment phases** that the applicant tends to undertake for the project in compliance with **Software Engineering principles**.

Information about the applicant can be found under the section titled "**Biographical Information**".

Links to some **previously done related work** have also been mentioned towards the end of the document.

A prototype has been built in order to mimic the actual application.
Prototype Information is given at the end of the proposal.

COURSE OF ACTION

SOFTWARE DEVELOPMENT PHASES

1. Requirements Gathering
2. Design
3. Build (Coding and integration)
4. Testing
5. Documentation
6. Deployment
7. Maintenance

Here is the way we plan to go around some important phases of the process.

1. Requirements Gathering:

As given in the description of the project at outreachy.org, the minimalistic requirements* are to build a router capable of returning right results when a user runs a slack command at the Slack workspace of the team.
*The software developer is also aware that the requirements may change or add up during or prior to the software build and in that case iterative methods of software developments would be considered.

2. Design:

The router shall be built using NodeJS, **a slack library** could be used.
The slackbot would be mapped to the required slack commands for various functionalities.
A slack app would be created and integrated with the Slackbot router API.

3. Build:

The actual build of the software shall be started as soon as the design conceptualisation shall be over.

Sub Tasks for building:

- **Slack Workspace:**
  It is expected that the organisation already has a workspace set up. As mentioned in the project description that Humanitarian OpenStreetMap Team uses slack for all internal and external communications

  The application /bot can be made to work in whatever **channel** it is required to work in.

- **Registering the application:**
  The application that shall be created using Node.js will be registered on Slack for it to be able to get added on the workspace.

- **Coding**:

  Coding sub tasks:
  - Interaction with Slack API
  - Interaction with HOT API: Which will deliver data about the applications of the organisations e.g. if they are operational or not etc.
  - Routing: Mapping slack commands to the functionalities required.

  Given below are some code samples from a sample project:
  A**xios** has been used to make api calls.

  The above sample of code represets a simple functionality of the slackbot router i.e. if a user types a command and query for a HOT OSM application's status, the Node.js app/ router shows the user the status of the application.

```
const SlackBot = require('slackbots');
const axios = require('axios');
const bot = new SlackBot({
token: 'xoxb-YOUR-OWN-TOKEN',
name: 'slackbot for HOT OSM'
});
// Start Handler
bot.on('start', () => {
const params = {
icon_emoji: ':something:'
};
```

```
bot.postMessageToChannel(
'HOT OSM channel',
'Welcome to HOTOSM bot',
params
);
});

// Response to Data
function handleMessage(message) { if
(message.includes('application status')) {
tellApplicationStatus(); }}

// Tell status of appliccation
 function tellApplicationStatus(){
axios.get('https://HOTOSM API')
.then(res => {
const status = res.data.APP.status;
const params = { icon_emoji: ':box:' };
bot.postMessageToChannel('general', `status: ${status}`,
params); });}
```

4. TESTING:

As soon as the coding phase is over, testing shall be initiated under the supervision of the mentors.
This will help find any bugs in the code or in the overall design of the software.

5. DOCUMENTATION:

As documentation should be consistent with organisation standards so every attempt shall be made in this direction while documenting the project.

6. DEPLOYMENT:

As per the requirements, the app is to be deployed using Amazon's cloud computing platform. The special service to be used is AWS's Lambda.
Experience: The applicant has a prior experience with Google Cloud Functions which is supposed to be the *AWS Lambda's* equivalent at GCP(Google Cloud Platform).

7. MAINTENANCE:

As this is an open-source project, the applicant would be happy to take part in the iteration process after the completion of the project.

TIMELINE

From begining to 10th May:

- To familiarize myself completely with HOT OSM Team's APIs.
- Finalizing Node.js frameworks to be used in projects by discussing with mentors.

10th May to 10th June :

- Comming up with a prototype of the application and testing it under the guidance of mentors
- End of designing phase.
- By the help of mentors on building prototype, I'll become absolutely clear about the bot requirements and the process of further build.

11th June to 20th July (coding period):

- Working towards the completion of the slackbot.
- End of Building phase.
- Begining of Testing phase.

21st July to 31st July:

- Familiarisation with AWS Lamba.
- Learning to work with AWS Lambda with mentors' assistance.
- Deployment of the slackbot on AWS's Lambda service.

31st July to 5th August:

- Knowing the organisation(Humanitarian OpenStreetMap Team) standards for documentation
- Working on documentation of the project.

*A buffer of almost a week has been kept for any unpredictable delay.

APPLICANT'S BIOGRAPHIC INFORMATION

- **Education:**

  - **Masters in Science**
    IIT Roorkee
    2019 - Present

  - **Bachelors in Science**
    Hansraj College, Delhi University
  - 2015 - 2018

  - **12th**
    Sri Chaintanya Techno School, Visakhapatnam
    Year: 2014

  - **10th**
    DAV Public School
    Year: 2012

- **Skills possessed :** HTML, CSS3, Javascript(NodeJS, ReactJS), AWS(EC2), GCP(Cloud Functions)

  Have worked on projects requiring the working knowledge of the above mentioned technologies.

- **Present work:**

  FOREIGN RESEARCH PORTAL IRC, IIT ROORKEE
  Currently collaborating on a project with IRC(International Relations Cell), IIT Roorkee, which requires building of an online platform.
  For now, This project is supposed to be completed by 15th of April, 2020.
  Technologies used: Javascript(ReactJS), Python(Django)

  Given below is the link for the front-end of the portal.
  Link: https://nodaddy.github.io/Foreign-Research-Portal/
  *The project is in its *beta* phase.

TILL NOW: PROTOTYPE SAMPLE

Steps to build:

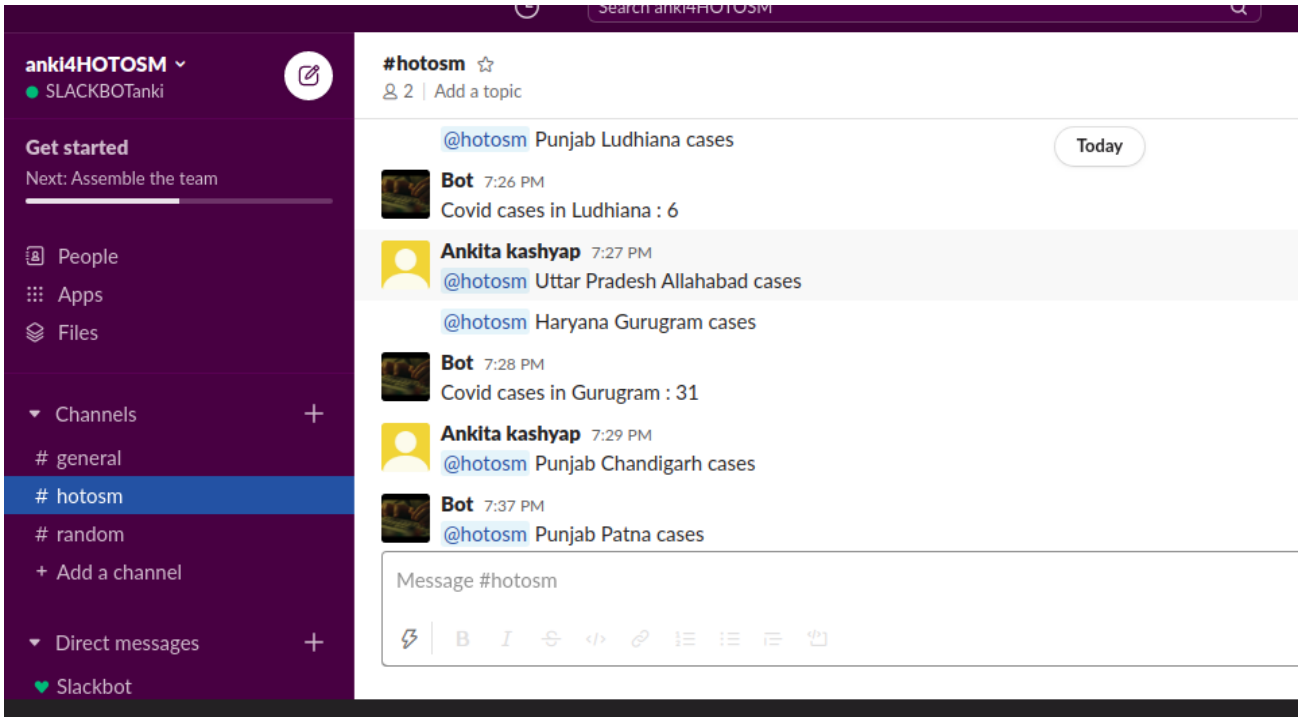
- A slack workspace was created.
- A channel was created called “hotosm”
- The app was registered on the workspace.
- The slackbot was coded using NodeJS as the technology for it.

What does the prototype sample slackbot do?

- The slackbot gives the information of the number of confirmed covid cases in a district of a particular state given by the user.
- The user has to type the command as “@hotbot *state district* cases” e.g. “@hotbot Bihar Patna cases” and it(the bot) shall push the result to the channel.
- For now an API by covid19india.org (https://api.covid19india.org/state_district_wise.json) has been used to mimic the HOTOSM’s APIs from which the data shall be collected.

Github link to the prototype:
https://github.com/Ankitakashyap29/slackbot4outreachySub_HOT_OSM

Here is a screenshot of the created workspace, where the slackbot has returned some results related to the query.
The user has to type the command as “@hotbot *state district* cases” e.g. “@hotbot Bihar Patna cases” and it(the bot) shall push the result to the channel.



THANK YOU