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Building a Cloud Application on IBM Bluemix(PaaS)

DS'17 Hands-On Cloud Lab

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Building a Cloud Application on IBM Bluemix(PaaS)

Goal

In this lab we will be creating a sample node application and will then deploy this application to IBM Bluemix by using the Cloud Foundry CLI.

Pre-Requisites

You will need the following to complete this lab successfully,

- Active email ID for registering with Bluemix
- Download and Install NodeJS
- Test Editor such as Sublime Text (or) Notepad ++

Technology Involved

- Server Side - NodeJS
- Client Side Technologies (HTML,CSS, Bootstrap)
- Cloud Foundry CLI(Open PaaS)
- IBM Bluemix(PaaS)

Labs Steps

So, let us get started with the application!

1 | Let's Start Coding

Create a folder in your machine and name it as **DS'17-CloudLab**.
Create the following files in your app directory, and add the given code. These files will form the base of your application.

- **index.html** : Your web page entry point
- **app.js** : Your NodeJS Server file that will use Express to serve the index.html page

index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
  <!-- Theme Made By www.w3schools.com - No Copyright -->
  <title>Bootstrap Theme Simply Me</title>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css"
>
  <link href="https://fonts.googleapis.com/css?family=Montserrat"
rel="stylesheet">
  <script
src="https://ajax.googleapis.com/ajax/libs/jquery/3.2.1/jquery.min.js"></script>
  <script
src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"></s
cript>
  <style>
  body {
      font: 20px Montserrat, sans-serif;
      line-height: 1.8;
      background-color:black;
  }

  .container-fluid {
```

```
    padding-top: 130px;
    padding-bottom: 70px;
}

img{
    vertical-align: middle;
    margin-top: 50px;
}
 </style>
</head>
<body>
<div class="container-fluid bg-3 text-center">
  <img  src="Miracle_White.png"  class="img-responsive"  style="display:inline"
alt="Bird" width="350" height="400"><br><br>
  <h2 style="color:#fff">Hello World Cloud Application Lab</h2>
</div>
</body>
</html>
```

---

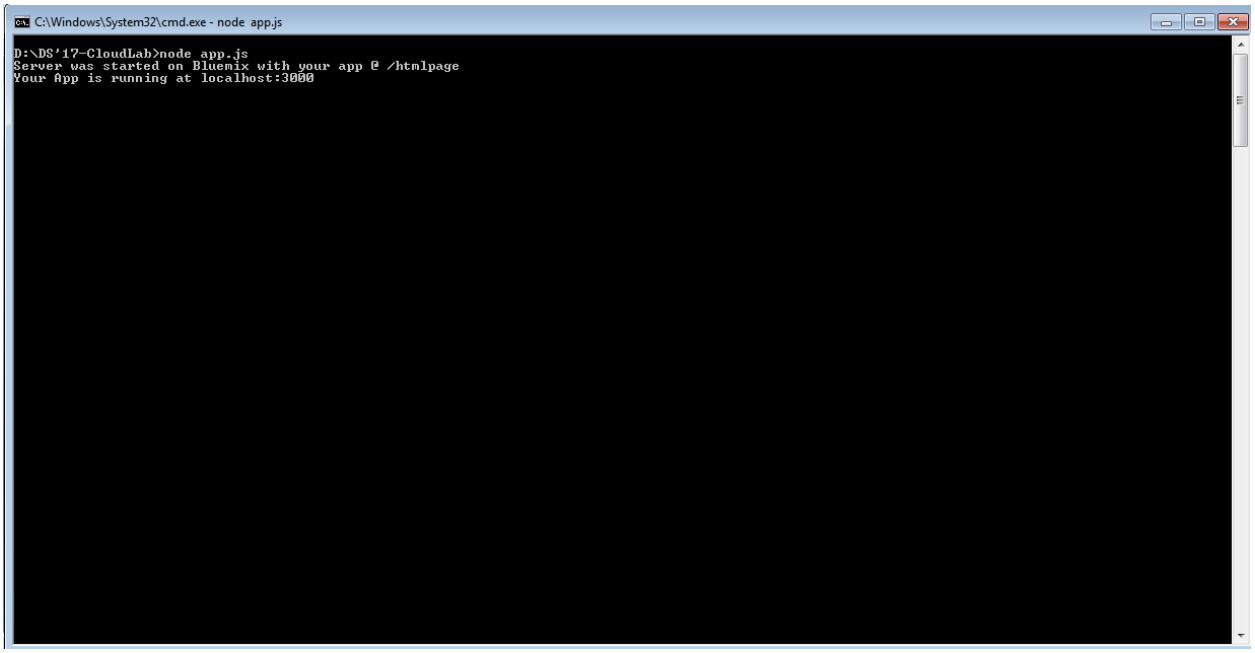
app.js

```
var express = require('express'); //requiring express library
var app = express();
var path = require('path');
var port = process.env.PORT || 3000;
var host = process.env.HOST || 'localhost' ;

//serving static files in express
app.use('/', express.static(path.join(__dirname, 'public')))

//creating a route to serve html file
app.get("/htmlpage",function(req,res){
```

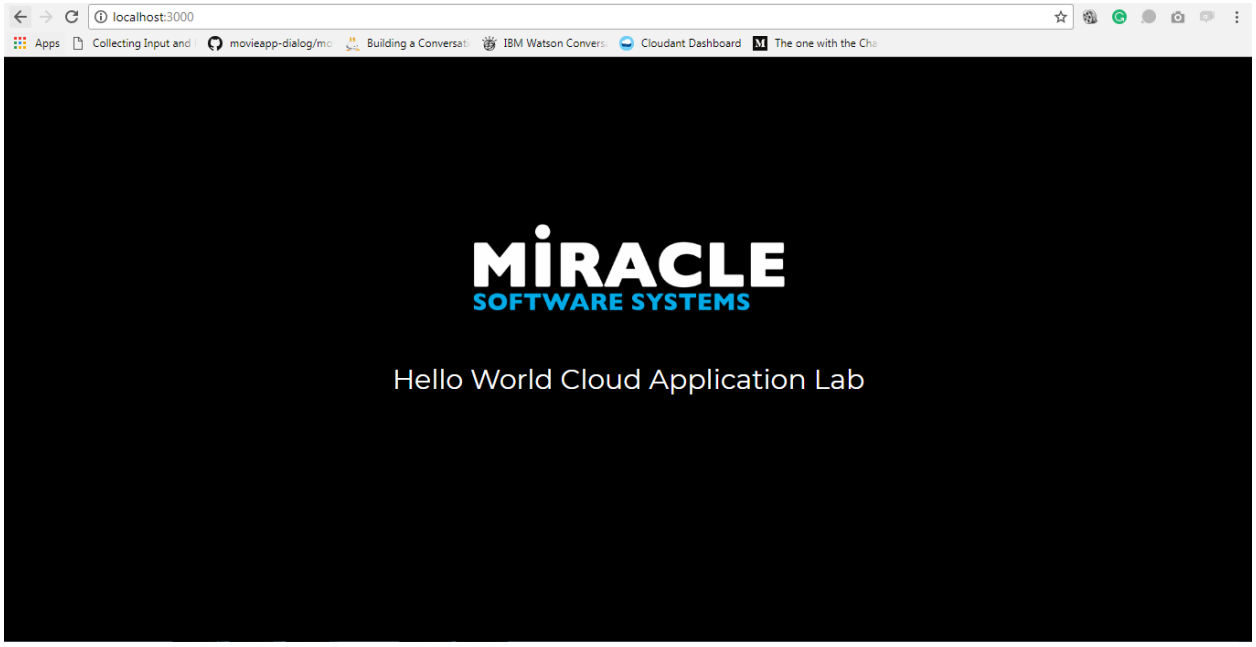
```
 res.sendFile(__dirname + "/public/" + "index.html");
});

//creating server
app.listen(port, function(){
 console.log("Server was started on Bluemix with your app @ /htmlpage");
 console.log("Your App is running at "+host+":"+port);
});
```

#2 | Testing the application locally

You can run your application from the terminal with the **node app.js** command.



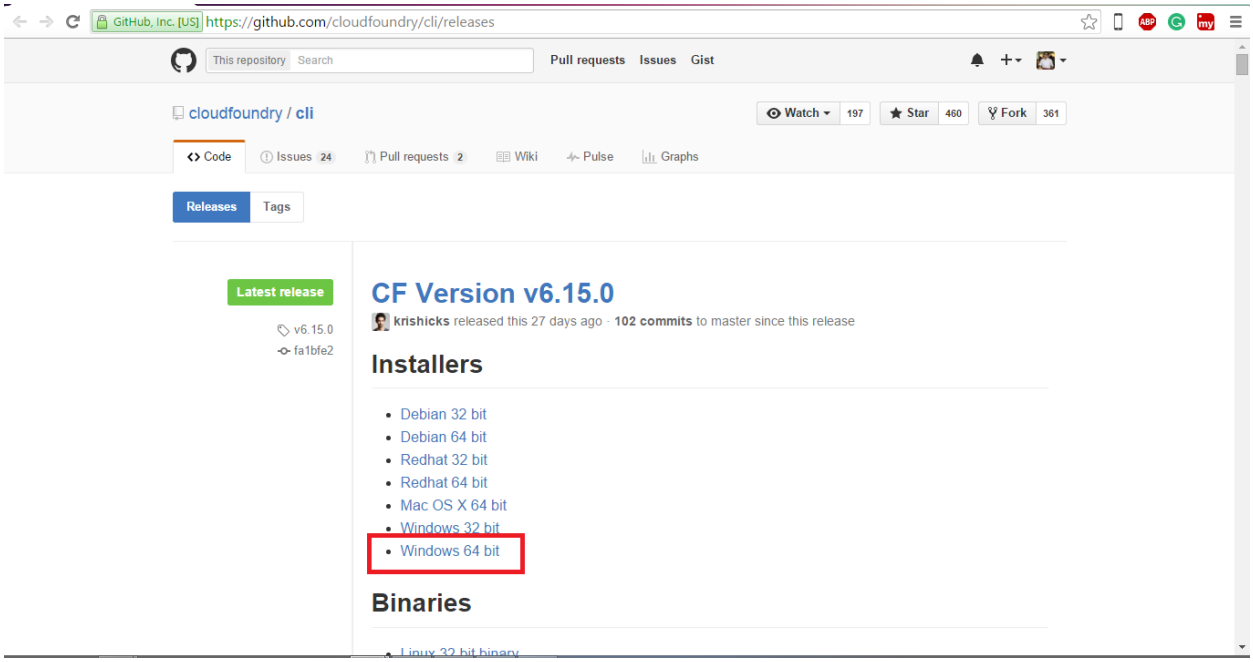
Test your application in Browser using, http://localhost:3000



#3 | Download and Install Cloud Foundry

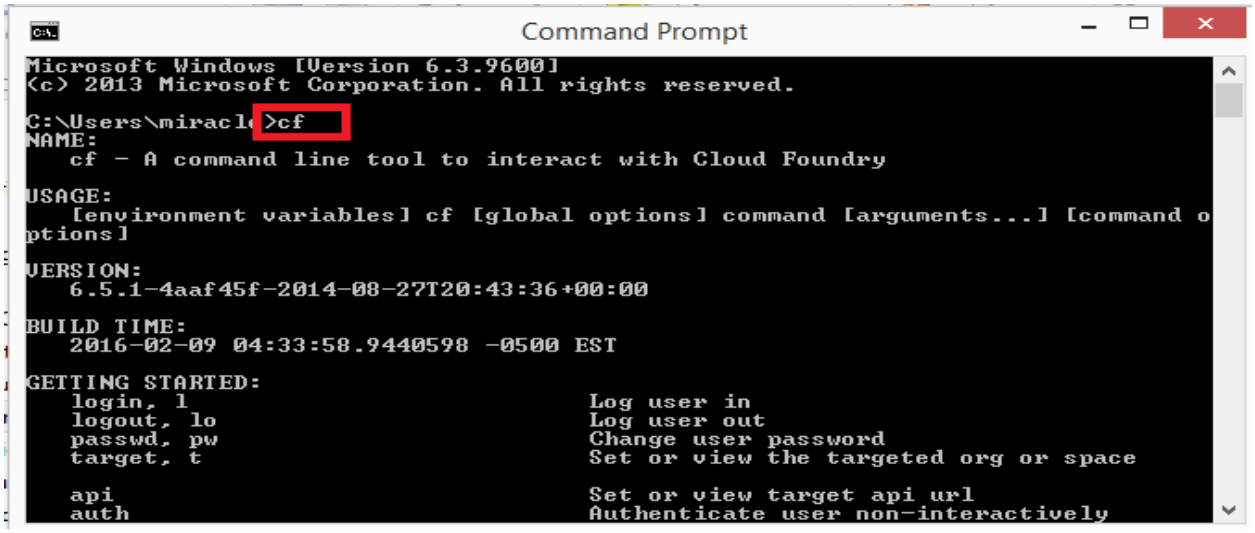
At this point you will be asked how you want to start coding your application. For this lab, we will be using the **Cloud Foundry (CF) CLI** option.

Open this link for installing and downloading,
https://github.com/cloudfoundry/cli



Then you will get a zip file. After extracting the zip file, you can find a **.exe** file inside. Install it.

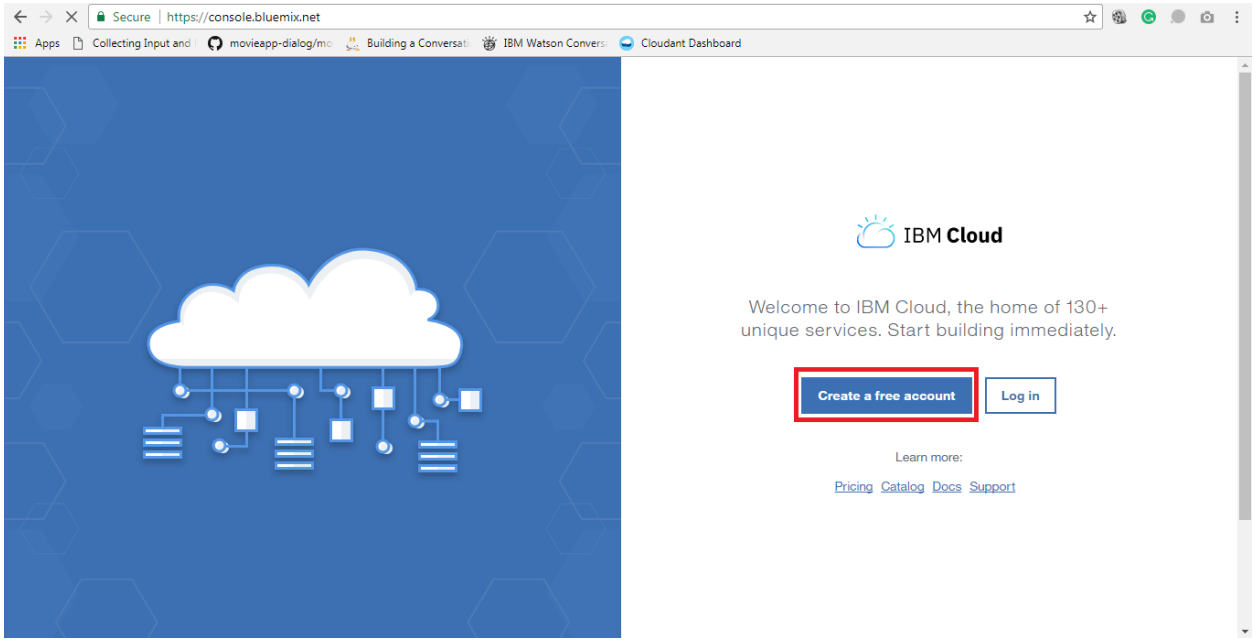
To check whether **CF** is installed properly or not, open command prompt and execute CF command. Then it will show you a set of **CF** commands, which indicates that CF is successfully installed on your machine.



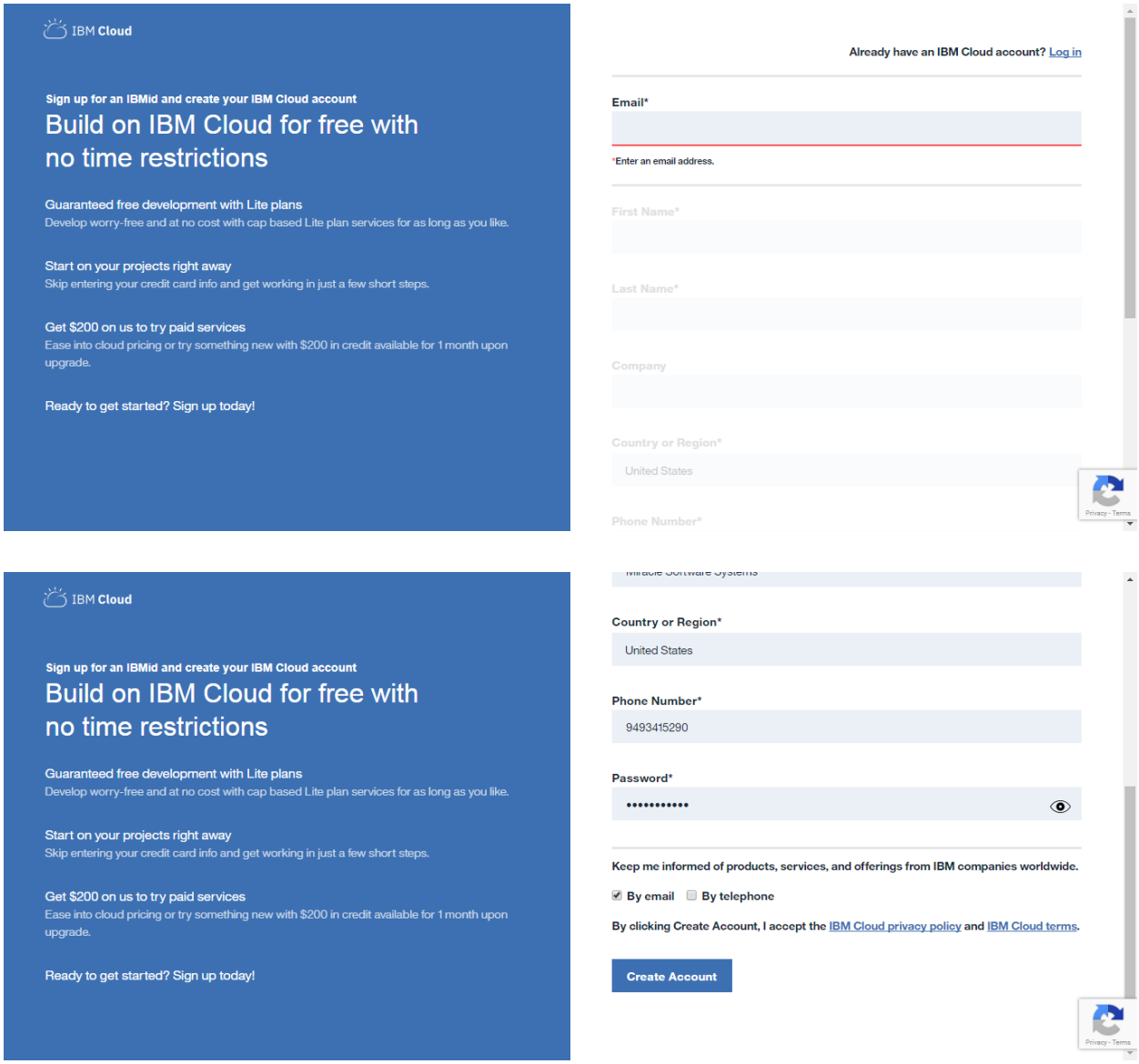
#4 | Creating IBM Bluemix account

The first step will be to make sure that we have access to the IBM Bluemix Console with either the free trial option (or) the paid subscription option.

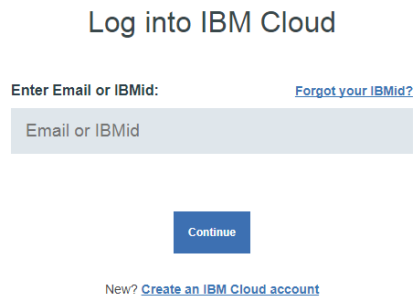
Login to Bluemix at **http://bluemix.net** (or) Register today at **https://console.ng.bluemix.net/registration/**



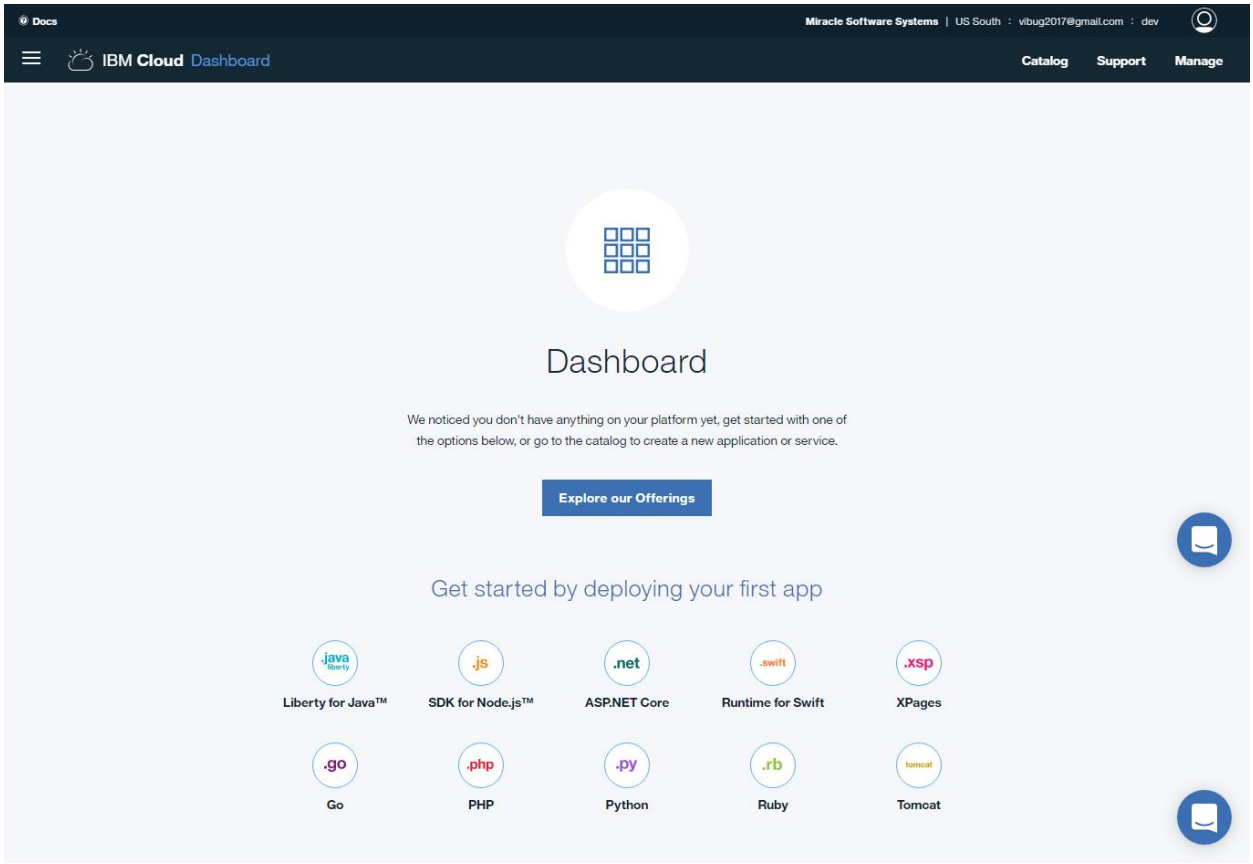
Click on Create a free account, and the fields as required.



After Clicking on "**Create Account**", confirmation mail will be sent to the registered mail id. Click on Confirm account and then Login to your Bluemix account.



After you login, you can see the dashboard where you can take a look at your applications and services.



The next step will be to take your application and deploy it back to Bluemix so that you can share it with your friends.

#5 | Creating IBM Bluemix account

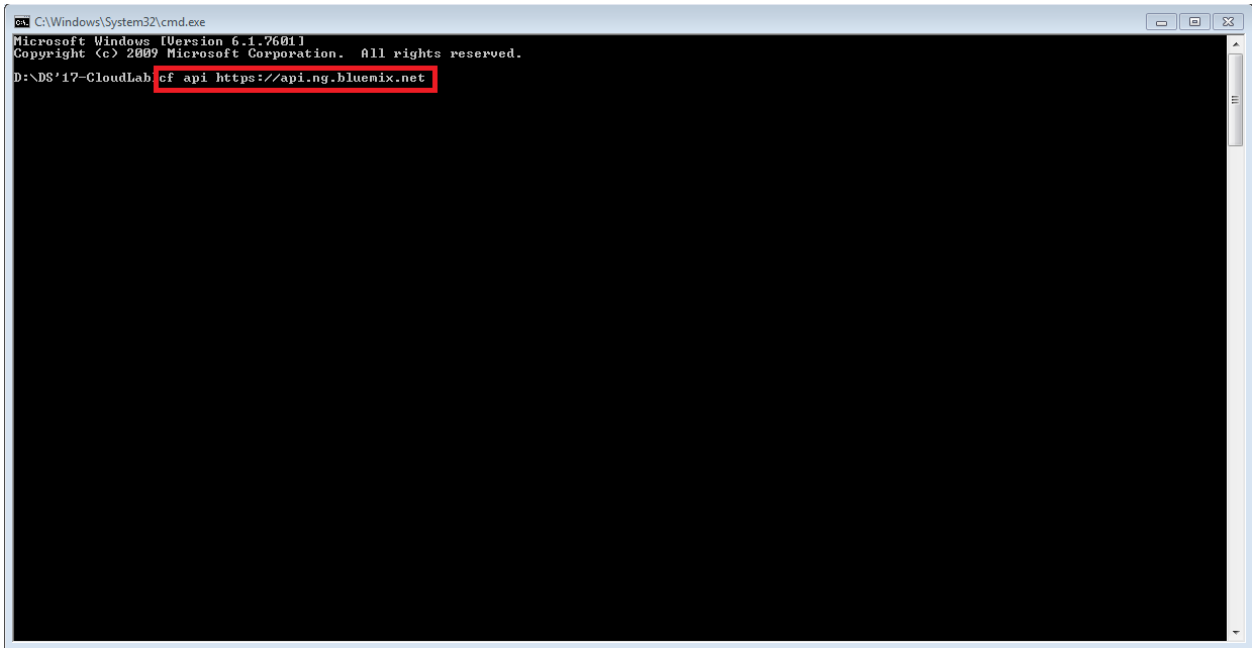
Add manifest file, for pushing the application to IBM Bluemix.

```
applications:
- path: .
  memory: 256M
  instances: 1
  domain: mybluemix.net
  name: nodejs-cloudlab
  host: nodejs-cloudlab
  disk_quota: 1024M
```

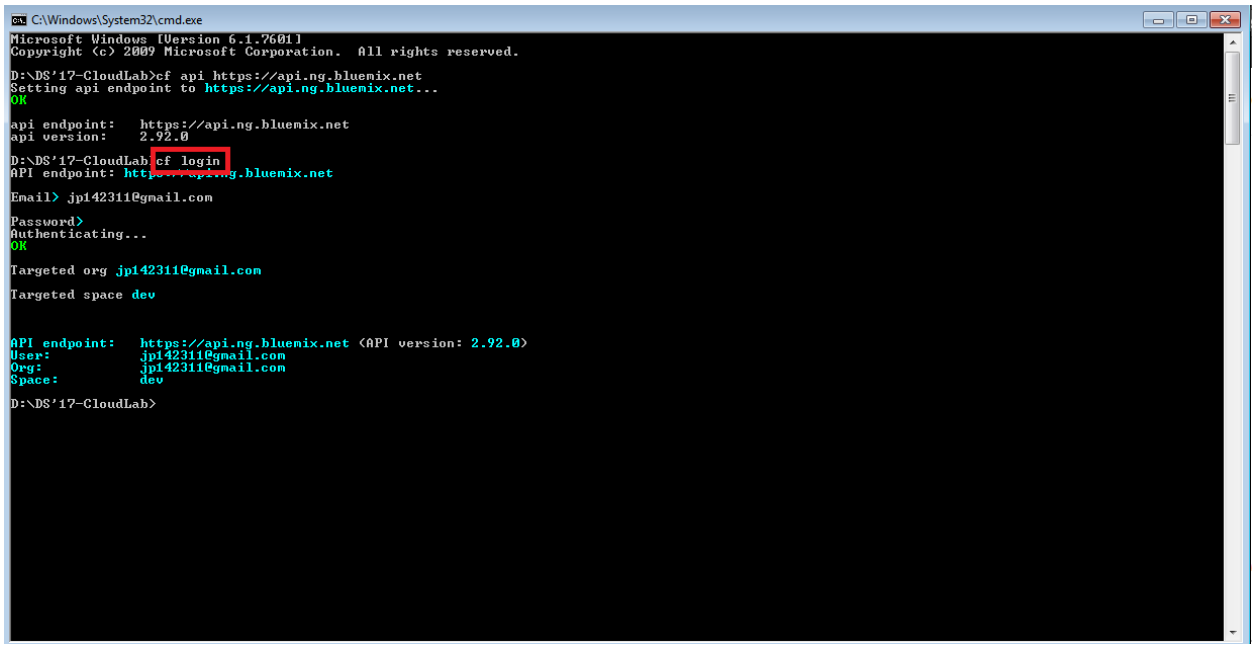
Name the file as manifest.yml and save in the same folder.

Open the **Command Prompt** and go to the location where you have your workspace. Then, connect to Bluemix using one of the following commands (Depends on which region you selected in your profile).

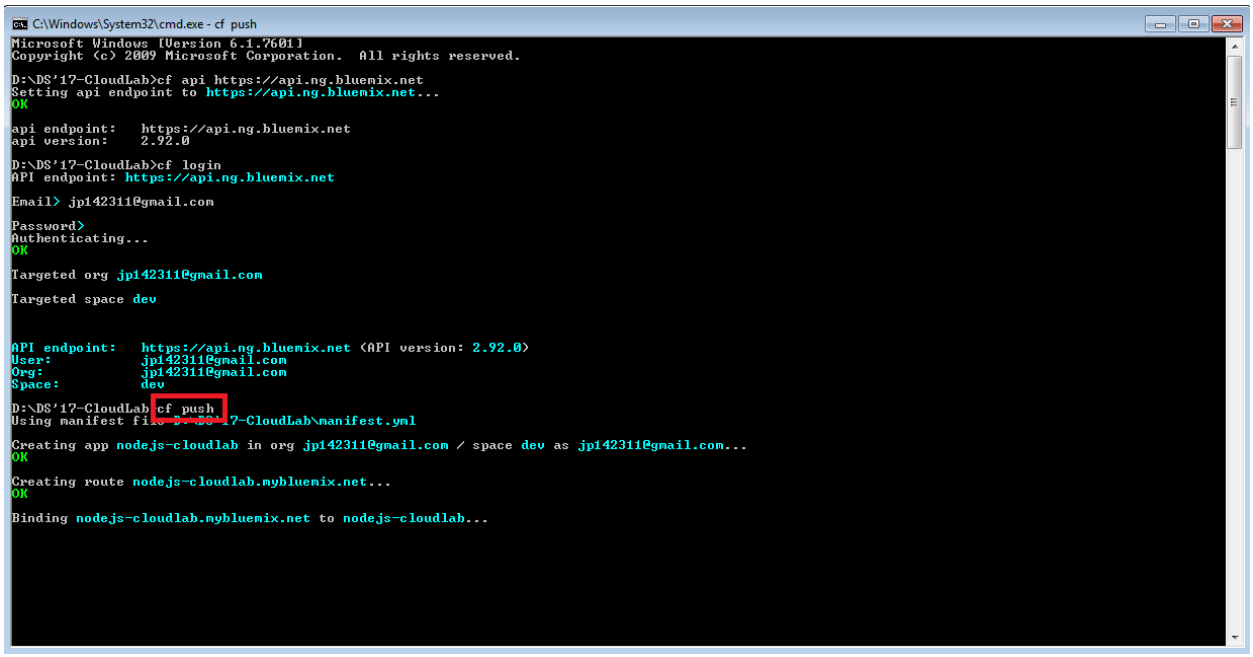
For Sydney: cf api https://api.au-syd.bluemix.net
For US South: cf api https://api.ng.bluemix.net
For United Kingdom: cf api https://api.eu-gb.bluemix.net



Login to Bluemix using the **cf login** command, and when prompted enter your user ID and password to login.

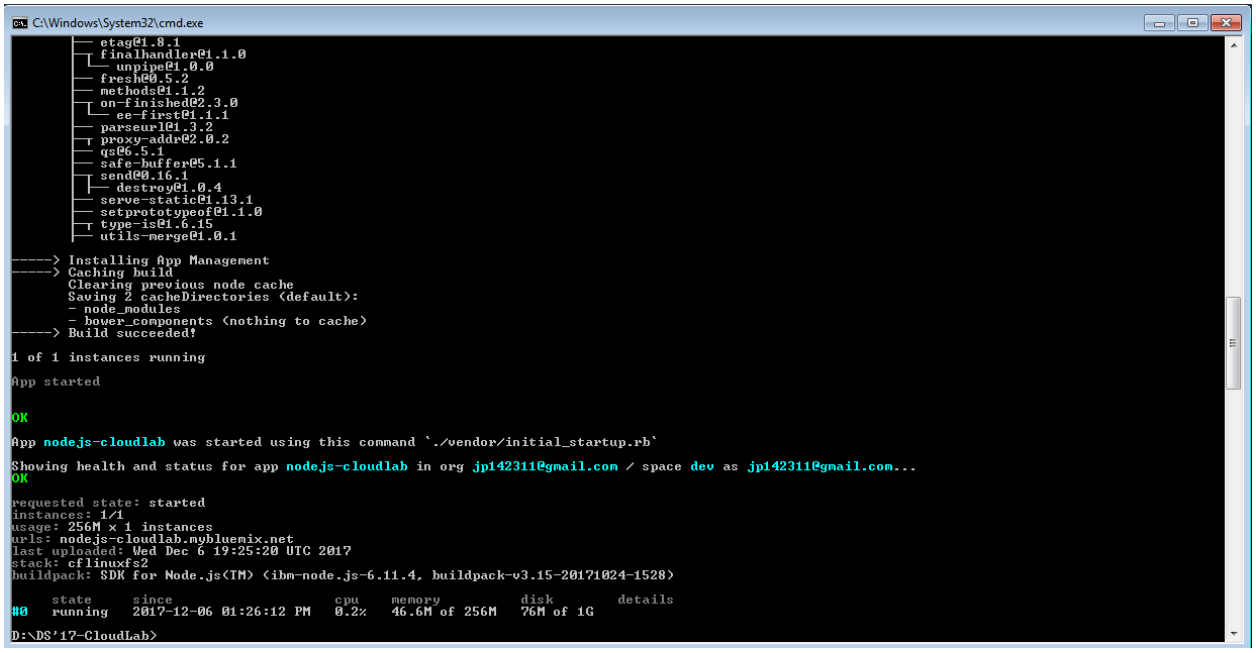


Make sure that you are within your application's directory and use the **cf push** command to push your application to your Bluemix Organization.



Note: This process might take around 3 to 5 minutes for completion

Once your application is pushed, your Command Prompt should look as shown below,



Now, you can go back to your Bluemix account in the browser and access your applications URL through **Dashboard->Application Overview->Application URL**.

'Your very own application, that you created and deployed in IBM Bluemix, should now be available as shown below!