TEAM BOOLEAN_PUNDITS

FARMERLY!
(A FARMER'S FRIEND)

APPROACH

- To reduce the wastage of water in the process of Irrigation of crops, we have devised an on-site soil moisture deducing solution that receives real-time data from the moisture sensor.
- Soil moisture sensors measure the volumetric water content in soil.
- The water pump starts if the soil is not moist enough, the motor pump stops itself , when the sensor produces data which verifies that the soil is moist enough for the certain crop to flourish..
- Each crop requires different amount of water to flourish which will be provided through a database containing information of quantity of water required per crop.

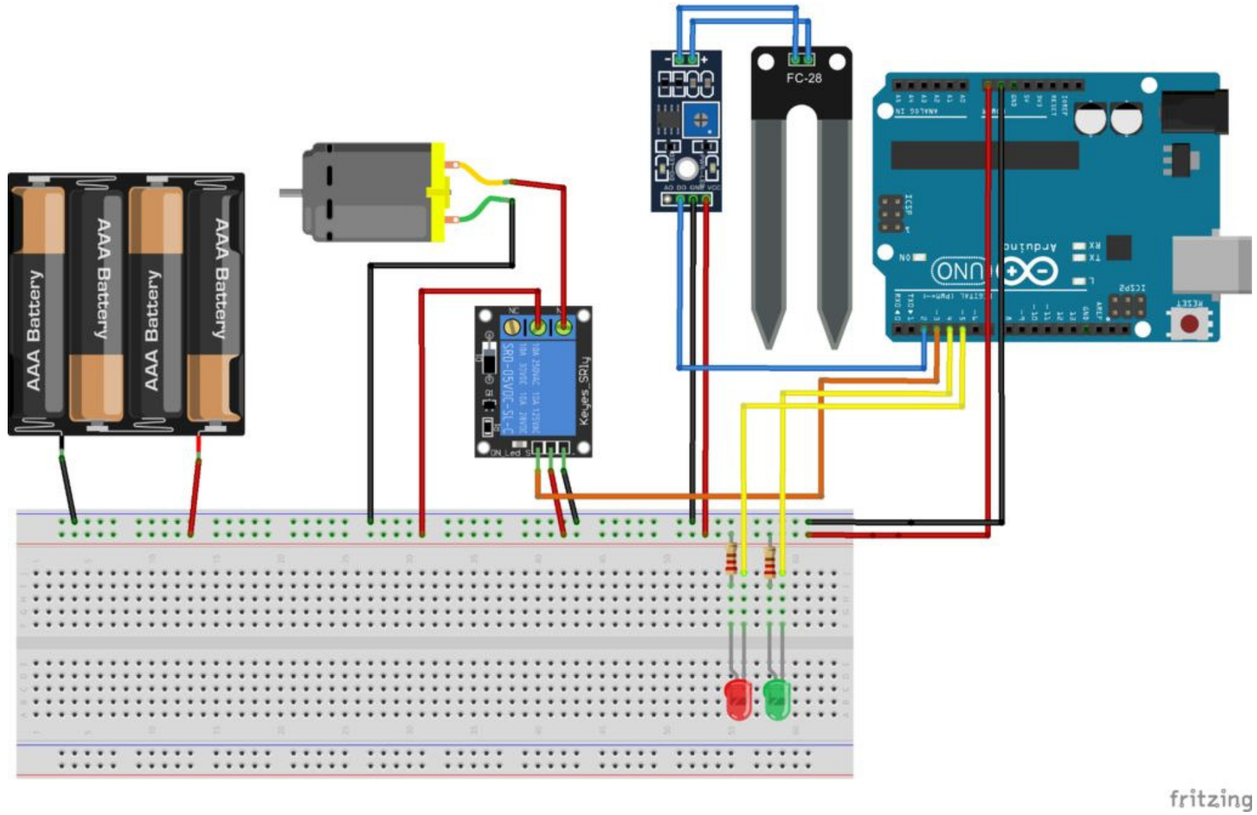
CONTINUED...

- Birds and rodents may often cause severe damage to fruit or agricultural crops.
- The sown seed is a food resource for ducks if the paddy fields are flooded, and for sparrows and pigeons if the fields are drained.
- To prevent the crops from deteriorating from damage through birds and rodents we've installed an IR proximity sensor which will ring an alarm that will alert the farmer who then can shoo them away.

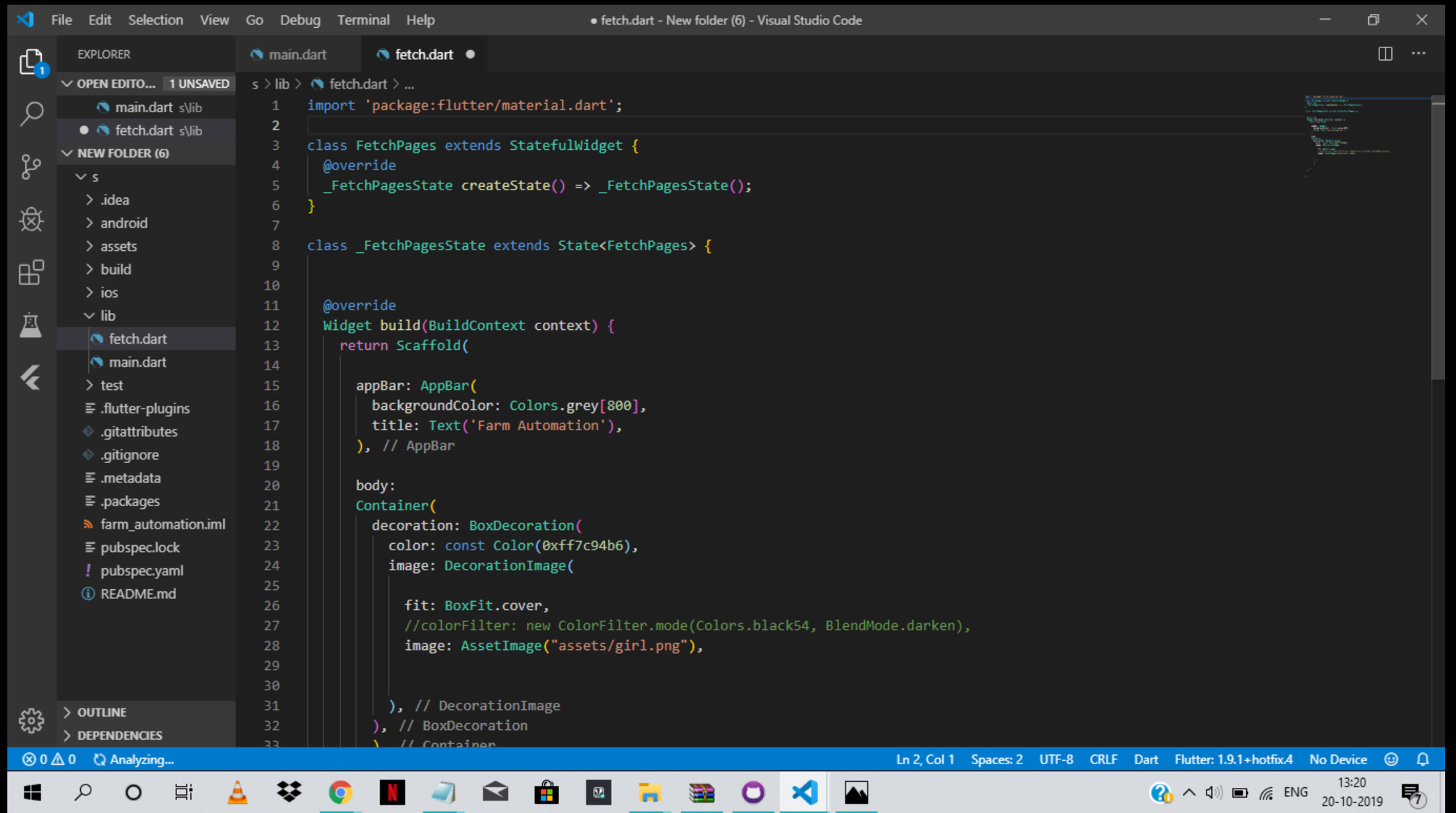
Technology Stack

- Microsoft Azure
- Flutter v1.9.1
- Node.js v10.16.3
- MongoDB v4.0.1.0
- Arduino Uno
- Ubuntu Virtual Machine

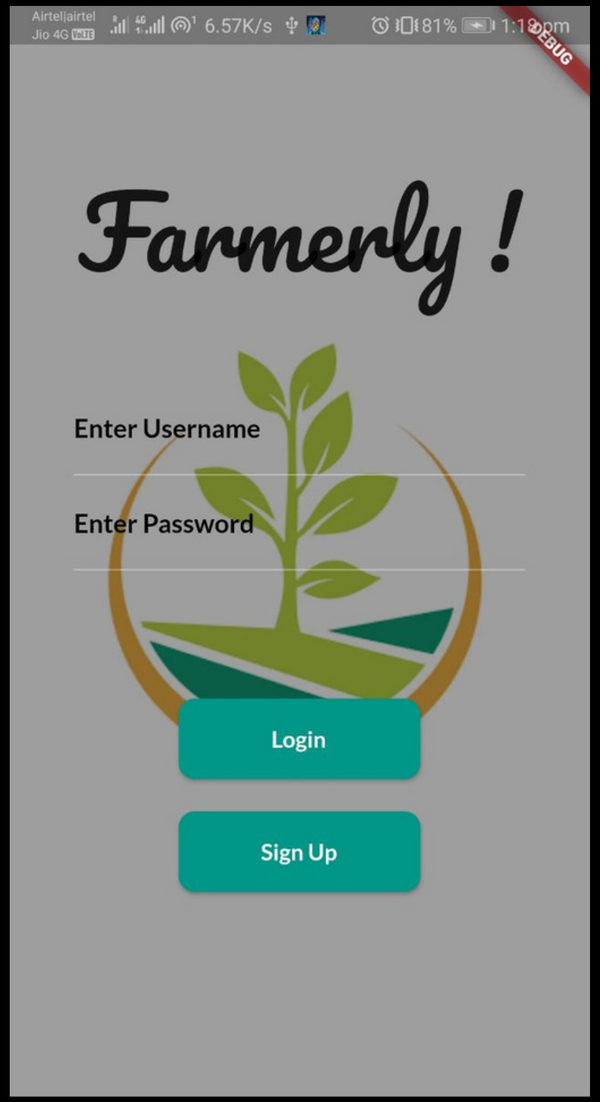
Circuit Diagram

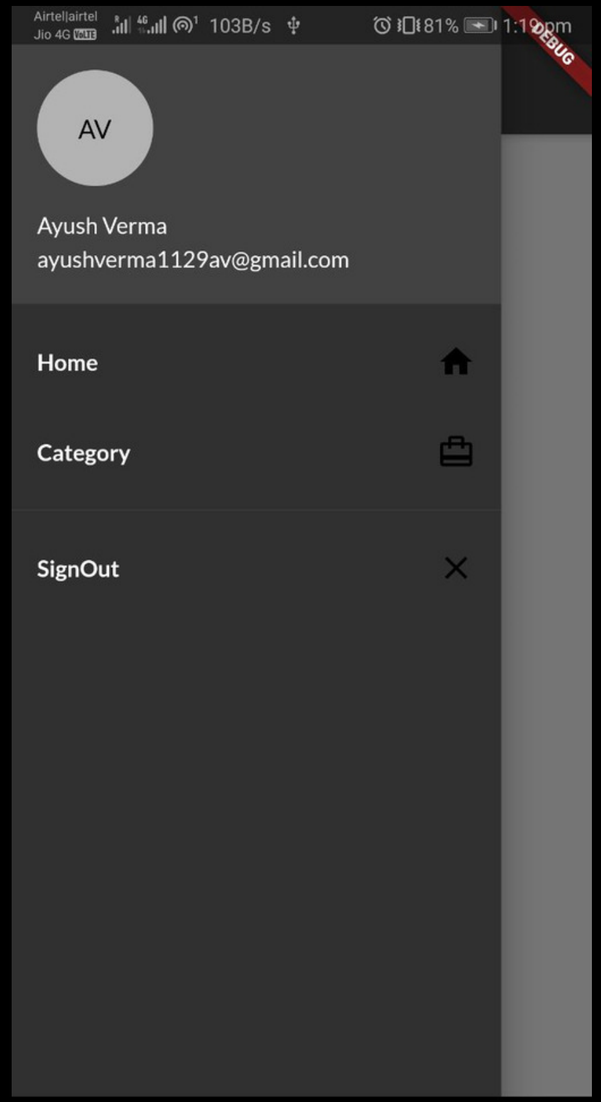


Flutter

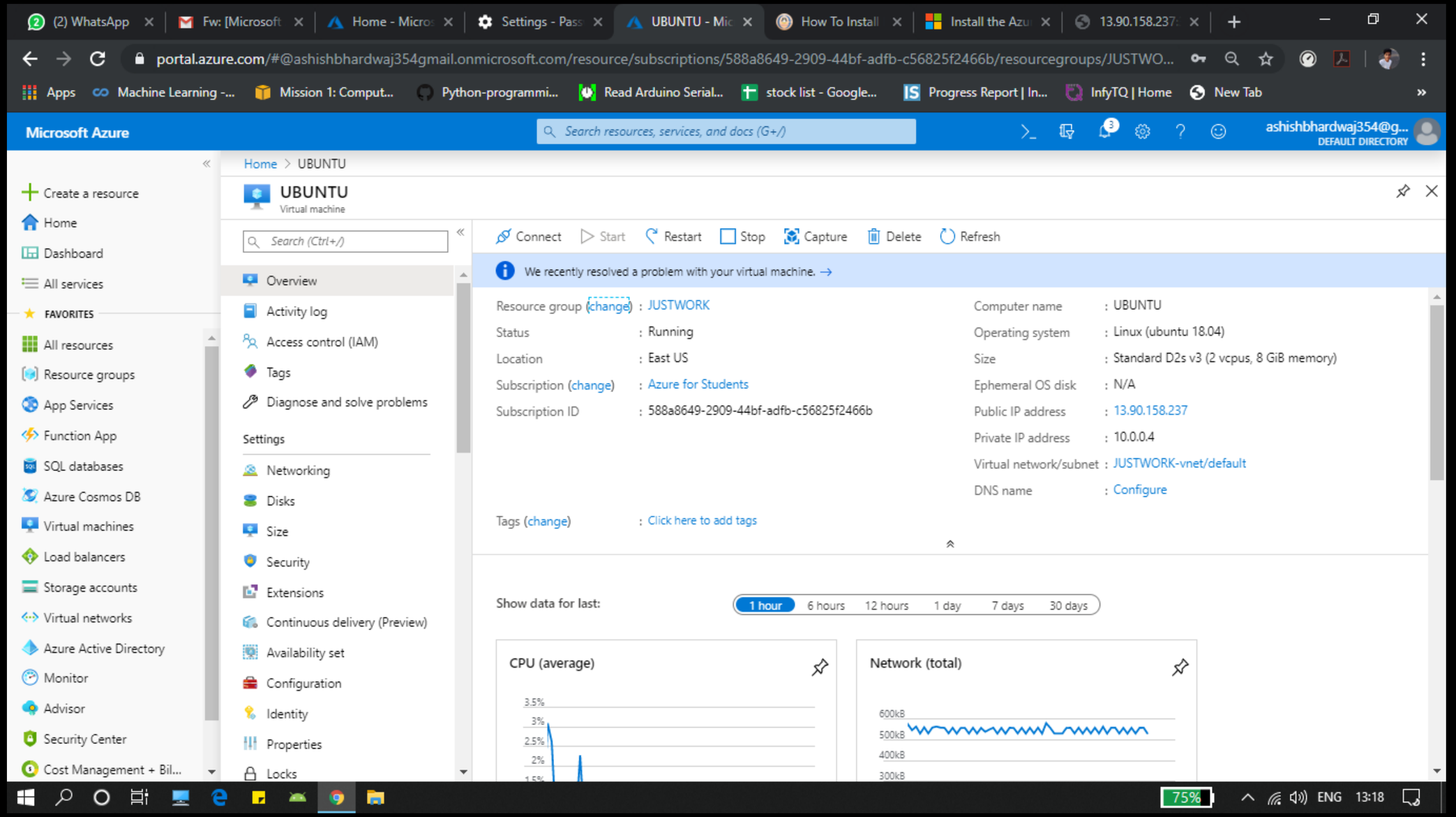

File Edit Selection View Go Debug Terminal Help
• fetch.dart - New folder (6) - Visual Studio Code
EXPLORER
main.dart
fetch.dart
OPEN EDITO... 1 UNSAVED
main.dart s\lib
fetch.dart s\lib
NEW FOLDER (6)
s
.idea
android
assets
build
ios
lib
fetch.dart
main.dart
test
.flutter-plugins
.gitattributes
.gitignore
.metadata
.packages
farm_automation.iml
pubspec.lock
pubspec.yaml
README.md
OUTLINE
DEPENDENCIES
s > lib > fetch.dart > ...
import 'package:flutter/material.dart';
class FetchPages extends StatefulWidget {
@override
_FetchPagesState createState() => _FetchPagesState();
}
class _FetchPagesState extends State<FetchPages> {
@override
Widget build(BuildContext context) {
return Scaffold(
appBar: AppBar(
backgroundColor: Colors.grey[800],
title: Text('Farm Automation'),
), // AppBar
body:
Container(
decoration: BoxDecoration(
color: const Color(0xff7c94b6),
image: DecorationImage(
fit: BoxFit.cover,
//colorFilter: new ColorFilter.mode(Colors.black54, BlendMode.darken),
image: AssetImage("assets/girl.png"),
), // DecorationImage
), // BoxDecoration
0 0 Analyzing...
Ln 2, Col 1 Spaces: 2 UTF-8 CRLF Dart Flutter: 1.9.1+hotfix.4 No Device
ENG
13:20
20-10-2019

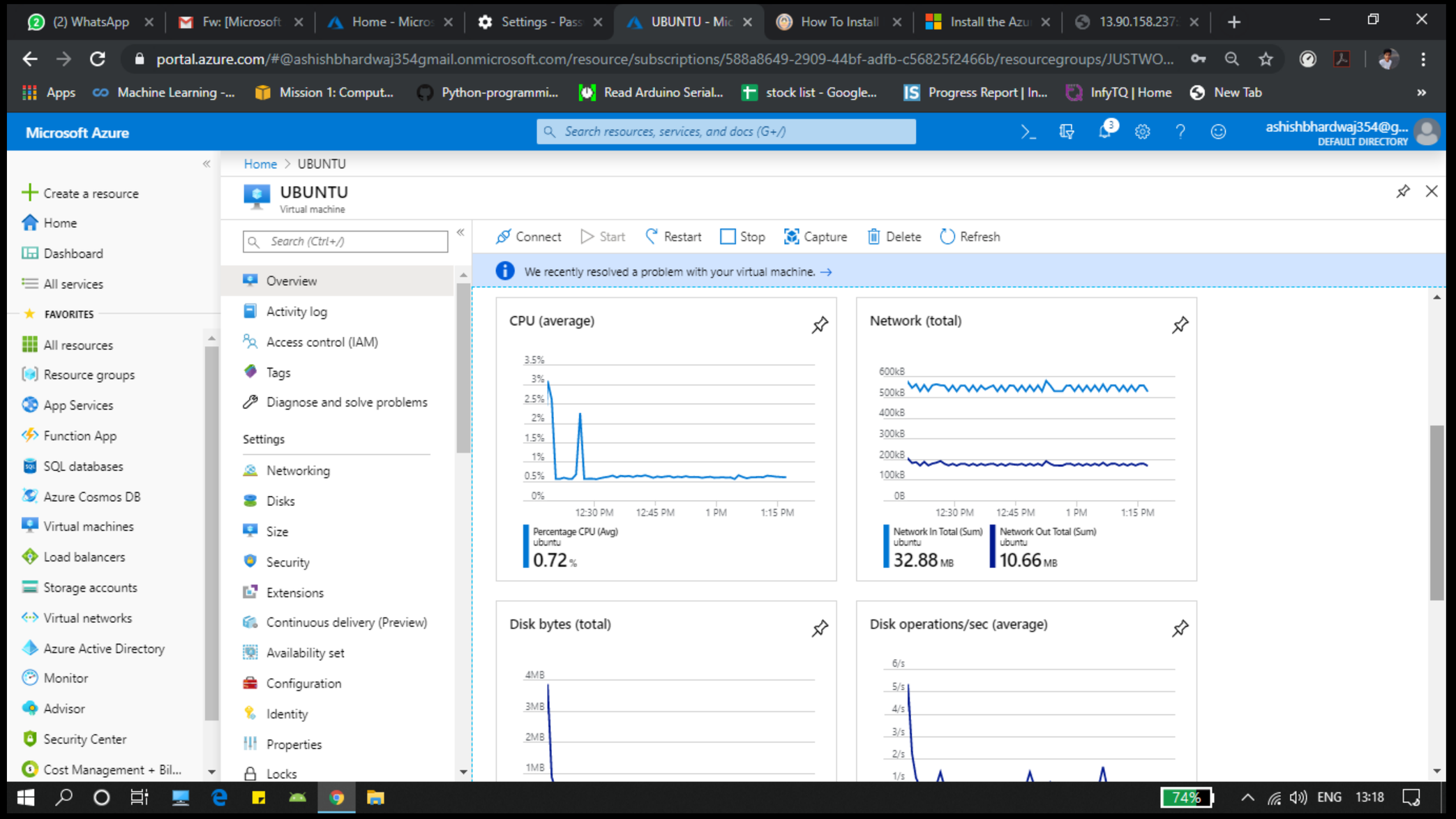
App Modules for iOS & Android





Ubuntu VM


(2) WhatsApp
Fw: [Microsoft
Home - Micros
Settings - Pass
UBUNTU - Mic
How To Install
Install the Azu
13.90.158.237
portal.azure.com/#@ashishbhardwaj354gmail.onmicrosoft.com/resource/subscriptions/588a8649-2909-44bf-adfb-c56825f2466b/resourcegroups/JUSTWO...
Apps
Machine Learning -...
Mission 1: Comput...
Python-programmi...
Read Arduino Serial...
stock list - Google...
Progress Report | In...
InfyTQ | Home
New Tab
Microsoft Azure
Search resources, services, and docs (G+/)
ashishbhardwaj354@g...
DEFAULT DIRECTORY
Home > UBUNTU
Create a resource
Home
Dashboard
All services
FAVORITES
All resources
Resource groups
App Services
Function App
SQL databases
Azure Cosmos DB
Virtual machines
Load balancers
Storage accounts
Virtual networks
Azure Active Directory
Monitor
Advisor
Security Center
Cost Management + Bil...
UBUNTU
Virtual machine
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Networking
Disks
Size
Security
Extensions
Continuous delivery (Preview)
Availability set
Configuration
Identity
Properties
Locks
Connect
Start
Restart
Stop
Capture
Delete
Refresh
We recently resolved a problem with your virtual machine.
Resource group (change) : JUSTWORK
Status : Running
Location : East US
Subscription (change) : Azure for Students
Subscription ID : 588a8649-2909-44bf-adfb-c56825f2466b
Computer name : UBUNTU
Operating system : Linux (ubuntu 18.04)
Size : Standard D2s v3 (2 vcpus, 8 GiB memory)
Ephemeral OS disk : N/A
Public IP address : 13.90.158.237
Private IP address : 10.0.0.4
Virtual network/subnet : JUSTWORK-vnet/default
DNS name : Configure
Tags (change) : Click here to add tags
Show data for last:
1 hour
6 hours
12 hours
1 day
7 days
30 days
CPU (average)
3.5%
3%
2.5%
2%
Network (total)
600kB
500kB
400kB
300kB
75%
ENG
13:18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UBUNTU - Mic
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SQL databases
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Load balancers
Storage accounts
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Azure Active Directory
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Advisor
Security Center
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Home > UBUNTU
UBUNTU
Virtual machine
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
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Start
Restart
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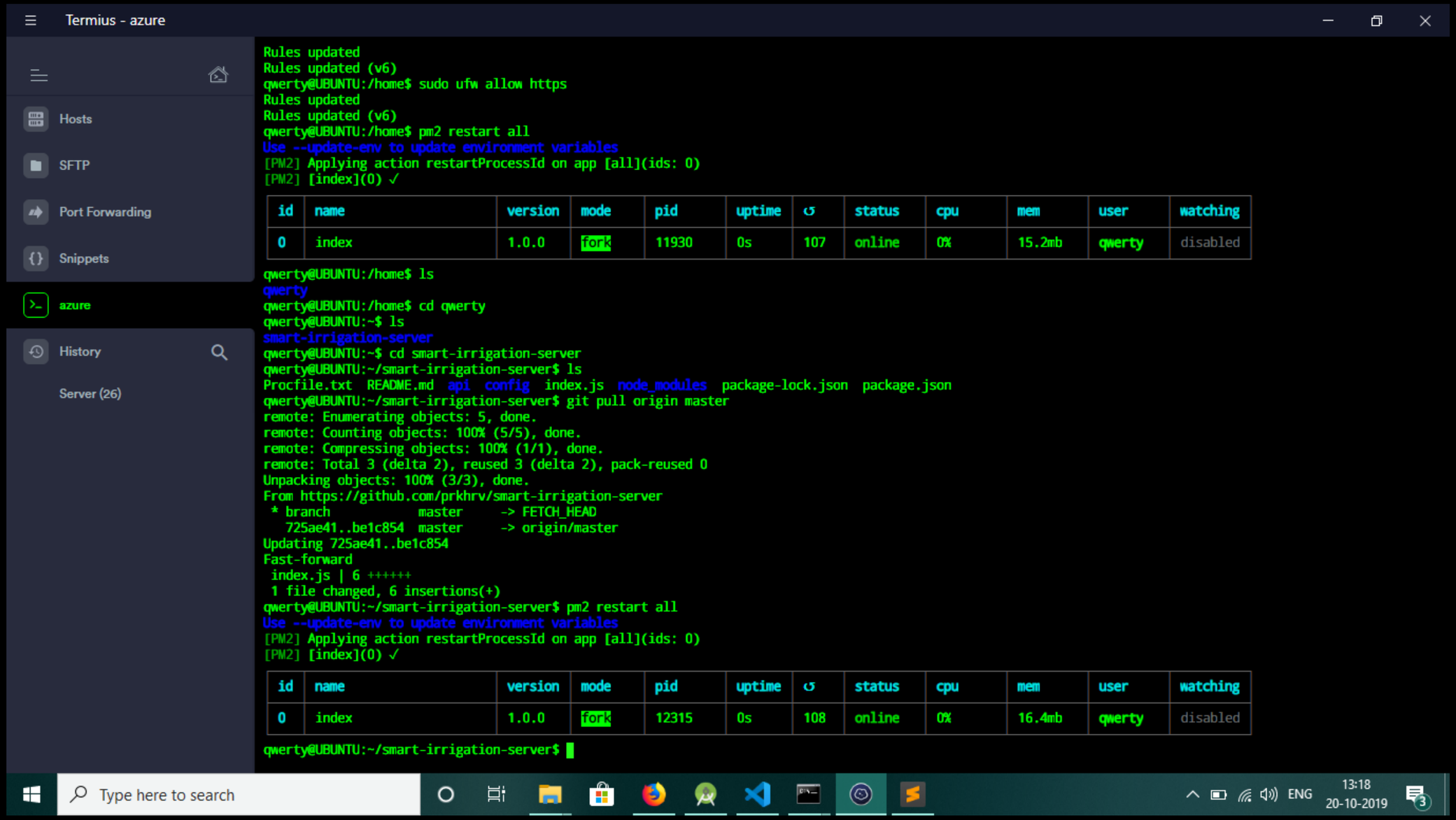
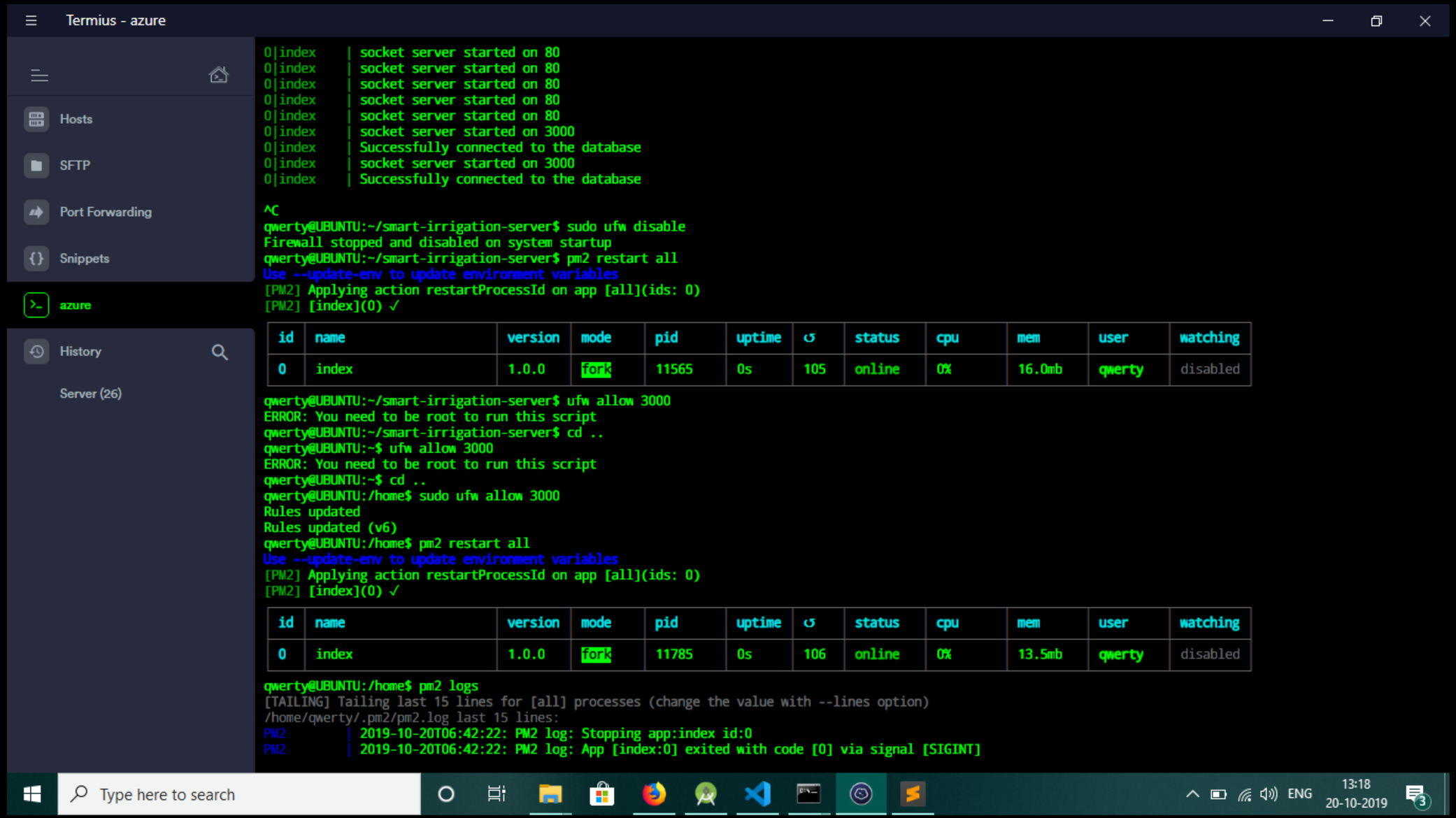
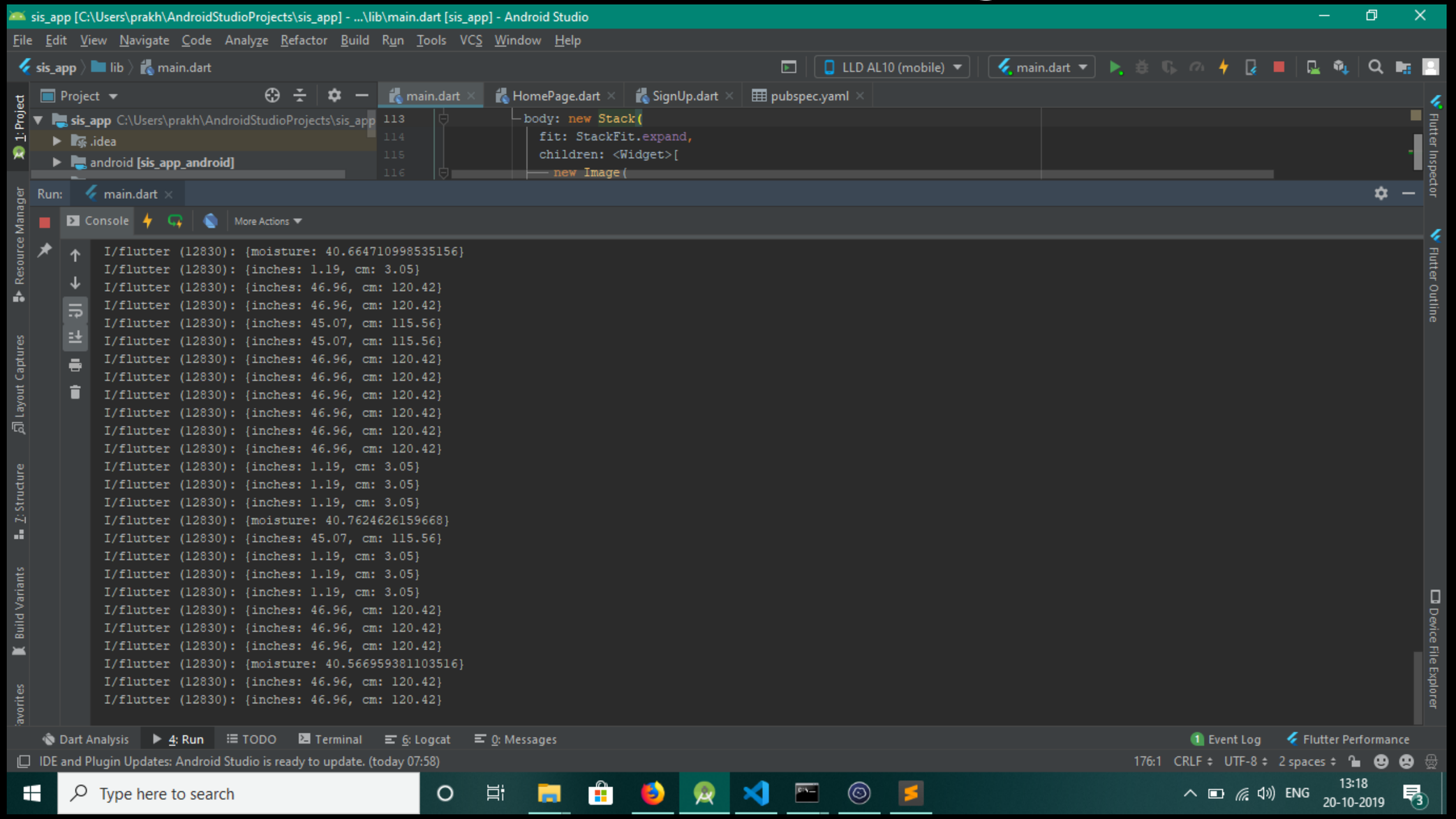
Delete
Refresh
We recently resolved a problem with your virtual machine.
CPU (average)
3.5%
3%
2.5%
2%
1.5%
1%
0.5%
0%
12:30 PM
12:45 PM
1 PM
1:15 PM
Percentage CPU (Avg)
ubuntu
0.72 %
Network (total)
600kB
500kB
400kB
300kB
200kB
100kB
0B
12:30 PM
12:45 PM
1 PM
1:15 PM
Network In Total (Sum)
ubuntu
32.88 MB
Network Out Total (Sum)
ubuntu
10.66 MB
Disk bytes (total)
4MB
3MB
2MB
1MB
Disk operations/sec (average)
6/s
5/s
4/s
3/s
2/s
1/s
74%
ENG
13:18

Microsoft Azure Server




Termius - azure
Hosts
SFTP
Port Forwarding
Snippets
azure
History
Server (26)
0|index | socket server started on 80
0|index | socket server started on 80
0|index | socket server started on 80
0|index | socket server started on 80
0|index | socket server started on 80
0|index | socket server started on 3000
0|index | Successfully connected to the database
0|index | socket server started on 3000
0|index | Successfully connected to the database
^C
qwerty@UBUNTU:~/smart-irrigation-server$ sudo ufw disable
Firewall stopped and disabled on system startup
qwerty@UBUNTU:~/smart-irrigation-server$ pm2 restart all
Use --update-env to update environment variables
[PM2] Applying action restartProcessId on app [all](ids: 0)
[PM2] [index](0) ✓
id name version mode pid uptime ↺ status cpu mem user watching
0 index 1.0.0 fork 11565 0s 105 online 0% 16.0mb qwerty disabled
qwerty@UBUNTU:~/smart-irrigation-server$ ufw allow 3000
ERROR: You need to be root to run this script
qwerty@UBUNTU:~/smart-irrigation-server$ cd ..
qwerty@UBUNTU:~$ ufw allow 3000
ERROR: You need to be root to run this script
qwerty@UBUNTU:~$ cd ..
qwerty@UBUNTU:/home$ sudo ufw allow 3000
Rules updated
Rules updated (v6)
qwerty@UBUNTU:/home$ pm2 restart all
Use --update-env to update environment variables
[PM2] Applying action restartProcessId on app [all](ids: 0)
[PM2] [index](0) ✓
id name version mode pid uptime ↺ status cpu mem user watching
0 index 1.0.0 fork 11785 0s 106 online 0% 13.5mb qwerty disabled
qwerty@UBUNTU:/home$ pm2 logs
[TAILING] Tailing last 15 lines for [all] processes (change the value with --lines option)
/home/qwerty/.pm2/pm2.log last 15 lines:
PM2 | 2019-10-20T06:42:22: PM2 log: Stopping app:index id:0
PM2 | 2019-10-20T06:42:22: PM2 log: App [index:0] exited with code [0] via signal [SIGINT]
Type here to search
ENG
13:18
20-10-2019

Sensor Readings



How much water is enough water??

Table 5 APPROXIMATE VALUES OF SEASONAL CROP WATER NEEDS

Crop	Crop water need (mm/total growing period)
Alfalfa	800-1600
Banana	1200-2200
Barley/Oats/Wheat	450-650
Bean	300-500
Cabbage	350-500
Citrus	900-1200
Cotton	700-1300
Maize	500-800
Melon	400-600
Onion	350-550
Peanut	500-700
Pea	350-500
Pepper	600-900
Potato	500-700
Rice (paddy)	450-700
Sorghum/Millet	450-650
Soybean	450-700
Sugarbeet	550-750
Sugarcane	1500-2500
Sunflower	600-1000
Tomato	400-800

Data Source :- Food and Agriculture Organization of the United Nations.

The influence of the crop type on the crop water need is important in two ways:

1. The crop type has an influence on the daily water needs of a fully grown crop; i.e. the peak daily water needs: a fully developed maize crop will need more water per day than a fully developed crop of onions.

2. The crop type has an influence on the duration of the total growing season of the crop. Peas have a growing season of 90-100 days whareas melons have a larger season span of 120-160 days.

Tiny feet , Big damage??

Table 1. Statistical Analysis of Result of survey

Question	Yes	No	Can't say
Are birds producing damage to the crops and grains?	73%	22%	5%
Is there a need of modern ecofreindly bird scaring techniques?	85%	2%	13%
Is damage percentage depending upon type of crops?	90%	8%	2%
Is damage percentage depends upon seasons?	93%	4%	3%

Data Source :- International Journal of Agricultural Technology

- Many crops are damaged by birds, with a little knowledge available of actual economic loss is done by House Sparrows, House Crow, Common Myna, Asian Koel graze on the crop and damage it in search of wireworm and other soil invertebrates.

Thanks!

Prakhar Varshney

Ayush Verma

Chintan Saxena

Ashish

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