Industry-specific intelligent fire management system

Using Python Random Variables

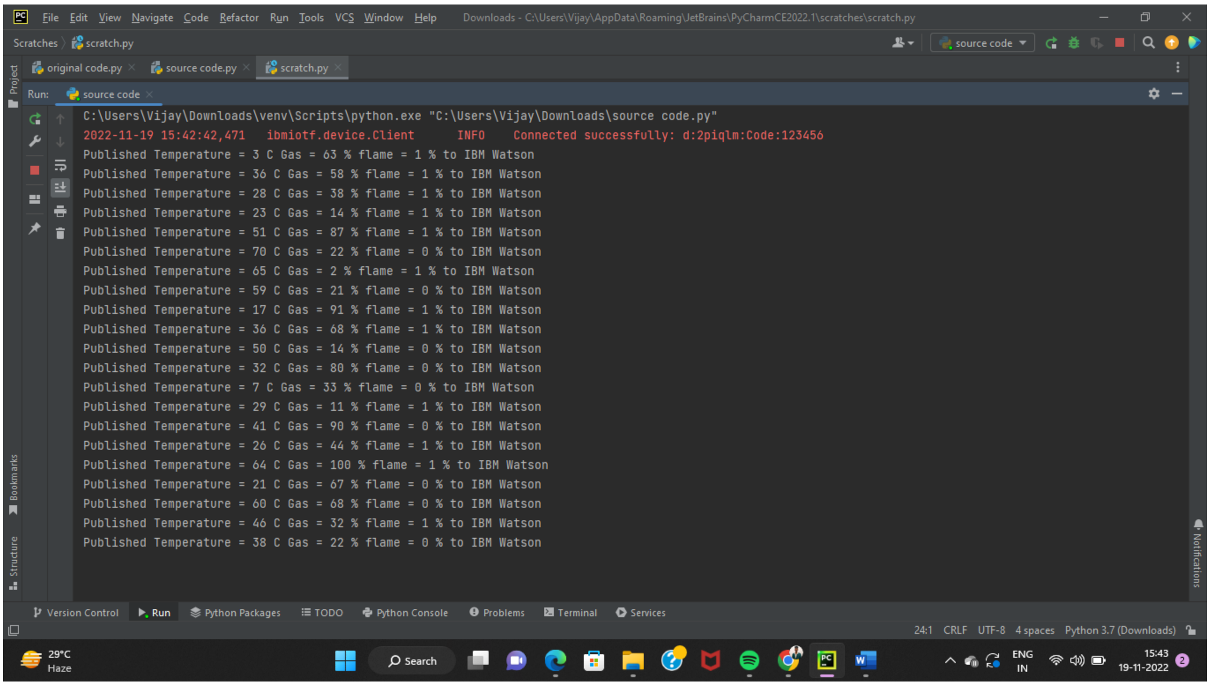
Team ID	PNT2022TMID27962
Project Name	Industry Specific intelligent fire management system

Python Code:

```python
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random


#Provide your IBM Watson Device Credentials
organization = "2piqlm"
deviceType = "Code"
deviceId = "123456"
authMethod = "token"
authToken = "12345678"

# Initialize GPIO


def myCommandCallback(cmd):
  print("Command received: %s" % cmd.data['command'])
  status = cmd.data['command']
  if status == "alerton":
    print("Fire detected")
  else:
    print("The surrounding environment is normal")

  #print(cmd)


try:
  deviceOptions = {
    "org": organization,
    "type": deviceType,
    "id": deviceId,
    "auth-method": authMethod,
    "auth-token": authToken
  }
  deviceCli = ibmiotf.device.Client(deviceOptions)
  #.............................................

except Exception as e:
  print("Caught exception connecting device: %s" % str(e))
  sys.exit()
```

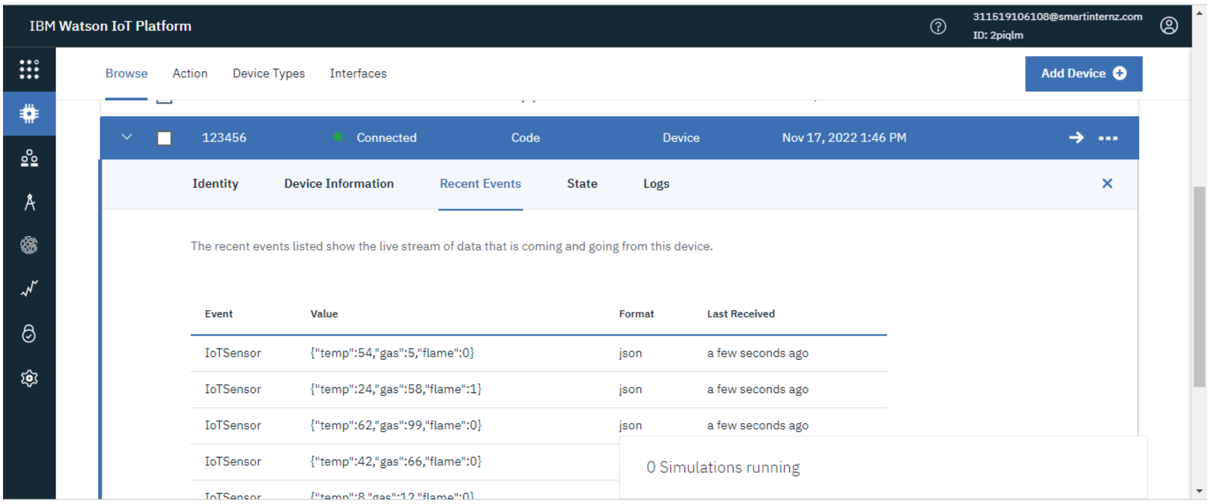
```
# Connect and send a datapoint "hello" with value "world" into the cloud as
an event of type "greeting" 10 times
deviceCli.connect()

while True:
  #Get Sensor Data from DHT11

  temp = random.randint(0, 50)
  Gas = random.randint(0, 50)
  Flame = random.randint(0, 1)





  data = {'temp': temp, 'Gas': Gas, 'Flame': Flame}



  #print data
  def myOnPublishCallback():
    print("Published Temperature = %s C" % temp, "Gas = %s " % Gas,
          "Flame = %s" % Flame, "to IBM Watson")


  success = deviceCli.publishEvent("IoTSensor",
                                   "json",
                                   data,
                                   qos=0,
                                   on_publish=myOnPublishCallback)
  if not success:
    print("Not connected to IoTF")
  time.sleep(1)

  deviceCli.commandCallback = myCommandCallback

# Disconnect the device and application from the cloud
deviceCli.disconnect()
```

Output In Python:



```
C:\Users\Vijay\Downloads\venv\Scripts\python.exe "C:\Users\Vijay\Downloads\source code.py"
2022-11-19 15:42:42,471   ibmiotf.device.Client      INFO    Connected successfully: d:2piqlm:Code:123456
Published Temperature = 3 C Gas = 63 % flame = 1 % to IBM Watson
Published Temperature = 36 C Gas = 58 % flame = 1 % to IBM Watson
Published Temperature = 28 C Gas = 38 % flame = 1 % to IBM Watson
Published Temperature = 23 C Gas = 14 % flame = 1 % to IBM Watson
Published Temperature = 51 C Gas = 87 % flame = 1 % to IBM Watson
Published Temperature = 70 C Gas = 22 % flame = 0 % to IBM Watson
Published Temperature = 65 C Gas = 2 % flame = 1 % to IBM Watson
Published Temperature = 59 C Gas = 21 % flame = 0 % to IBM Watson
Published Temperature = 17 C Gas = 91 % flame = 1 % to IBM Watson
Published Temperature = 36 C Gas = 68 % flame = 1 % to IBM Watson
Published Temperature = 50 C Gas = 14 % flame = 0 % to IBM Watson
Published Temperature = 32 C Gas = 80 % flame = 0 % to IBM Watson
Published Temperature = 7 C Gas = 33 % flame = 0 % to IBM Watson
Published Temperature = 29 C Gas = 11 % flame = 1 % to IBM Watson
Published Temperature = 41 C Gas = 90 % flame = 0 % to IBM Watson
Published Temperature = 26 C Gas = 44 % flame = 1 % to IBM Watson
Published Temperature = 64 C Gas = 100 % flame = 1 % to IBM Watson
Published Temperature = 21 C Gas = 67 % flame = 0 % to IBM Watson
Published Temperature = 60 C Gas = 68 % flame = 0 % to IBM Watson
Published Temperature = 46 C Gas = 32 % flame = 1 % to IBM Watson
Published Temperature = 38 C Gas = 22 % flame = 0 % to IBM Watson
```

Python To IBM IOT Watson:

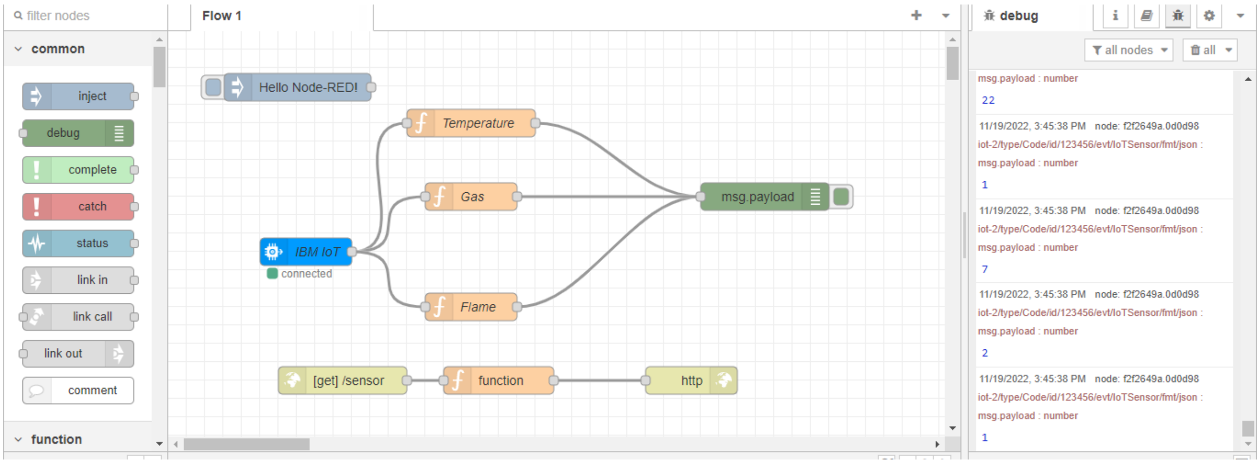


123456 ● Connected Code Device Nov 17, 2022 1:46 PM

The recent events listed show the live stream of data that is coming and going from this device.

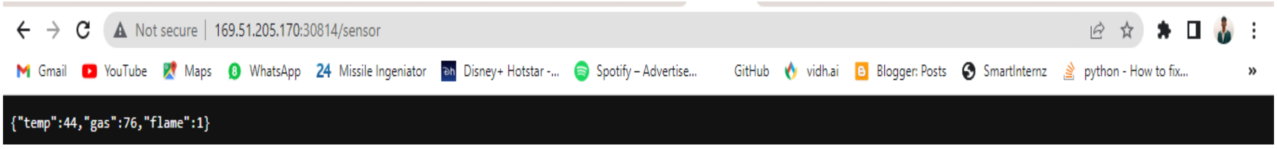
Event	Value	Format	Last Received
IoTSensor	{"temp":54,"gas":5,"flame":0}	json	a few seconds ago
IoTSensor	{"temp":24,"gas":58,"flame":1}	json	a few seconds ago
IoTSensor	{"temp":62,"gas":99,"flame":0}	json	a few seconds ago
IoTSensor	{"temp":42,"gas":66,"flame":0}		
IoTSensor	{"temp":8,"gas":12,"flame":0}		

IBM IOT to Node Red:



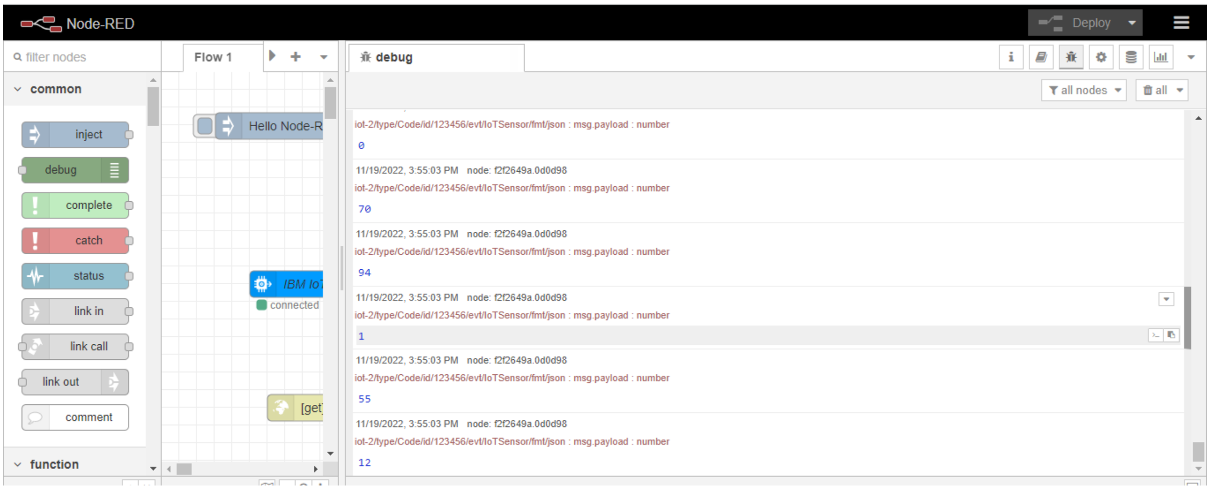
```
msg.payload : number
22
11/19/2022, 3:45:38 PM   node: f2f2649a.0d0d98
iot-2/type/Code/id/123456/evt/IoTSensor/fmt/json :
msg.payload : number
1
11/19/2022, 3:45:38 PM   node: f2f2649a.0d0d98
iot-2/type/Code/id/123456/evt/IoTSensor/fmt/json :
msg.payload : number
7
11/19/2022, 3:45:38 PM   node: f2f2649a.0d0d98
iot-2/type/Code/id/123456/evt/IoTSensor/fmt/json :
msg.payload : number
2
11/19/2022, 3:45:38 PM   node: f2f2649a.0d0d98
iot-2/type/Code/id/123456/evt/IoTSensor/fmt/json :
msg.payload : number
1
```

Node Red Link to MIT:



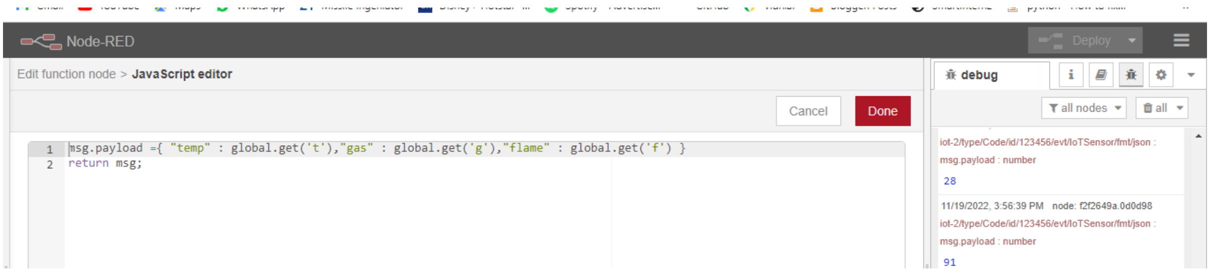
```
{"temp":44,"gas":76,"flame":1}
```

Node Red Output:



```
iot-2/type/Code/id/123456/evt/IoTSensor/fmt/json : msg.payload : number
0
11/19/2022, 3:55:03 PM   node: f2f2649a.0d0d98
iot-2/type/Code/id/123456/evt/IoTSensor/fmt/json : msg.payload : number
70
11/19/2022, 3:55:03 PM   node: f2f2649a.0d0d98
iot-2/type/Code/id/123456/evt/IoTSensor/fmt/json : msg.payload : number
94
11/19/2022, 3:55:03 PM   node: f2f2649a.0d0d98
iot-2/type/Code/id/123456/evt/IoTSensor/fmt/json : msg.payload : number
1
11/19/2022, 3:55:03 PM   node: f2f2649a.0d0d98
iot-2/type/Code/id/123456/evt/IoTSensor/fmt/json : msg.payload : number
55
11/19/2022, 3:55:03 PM   node: f2f2649a.0d0d98
iot-2/type/Code/id/123456/evt/IoTSensor/fmt/json : msg.payload : number
12
```

Node Red Function Code:



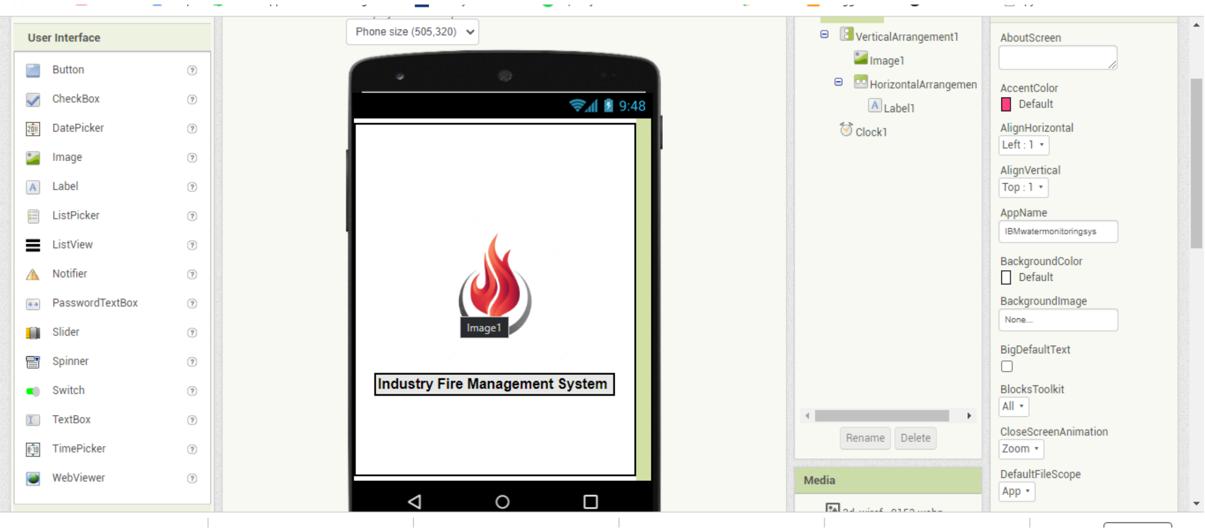
```
msg.payload ={ "temp" : global.get('t'),"gas" : global.get('g'),"flame" : global.get('f') }
return msg;
```

```
iot-2/type/Code/id/123456/evt/IoTSensor/fmt/json :
msg.payload : number
28
11/19/2022, 3:56:39 PM   node: f2f2649a.0d0d98
iot-2/type/Code/id/123456/evt/IoTSensor/fmt/json :
msg.payload : number
91
```

MIT App Output:

APP CREATION: FRONTEND

SCREEN 1:



AboutScreen

AccentColor
Default

AlignHorizontal
Left : 1

AlignVertical
Top : 1

AppName
IBMwatermonitoringsys

BackgroundColor
Default

BackgroundImage
None...

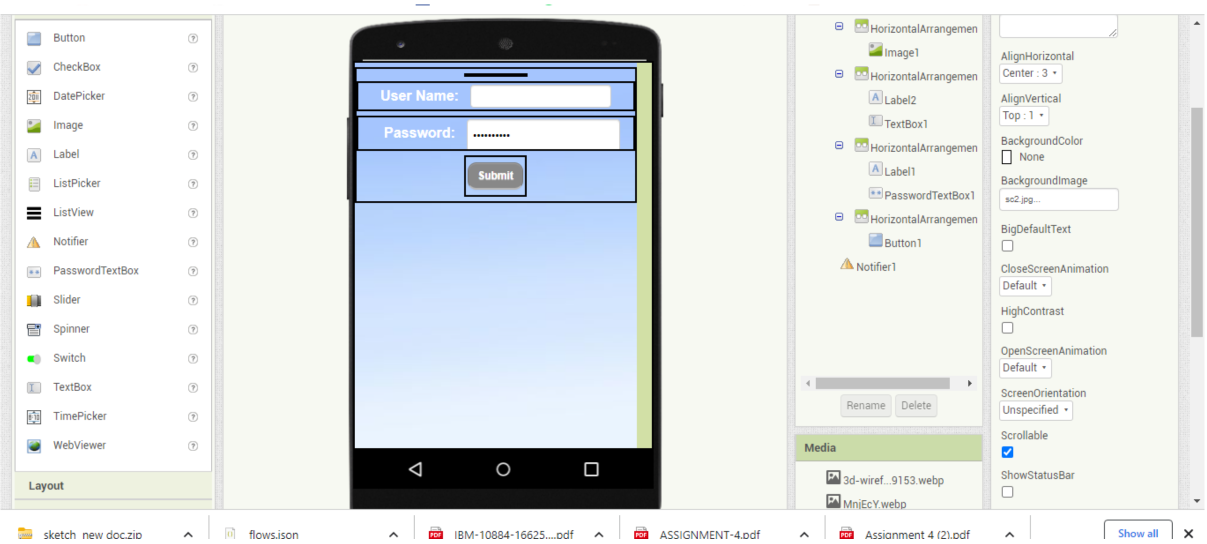
BigDefaultText
□

BlocksToolkit
All

CloseScreenAnimation
Zoom

DefaultFileScope
App

SCREEN 2:



AlignHorizontal
Center : 3

AlignVertical
Top : 1

BackgroundColor
□ None

BackgroundImage
sc2.jpg...

BigDefaultText
□

CloseScreenAnimation
Default

HighContrast
□

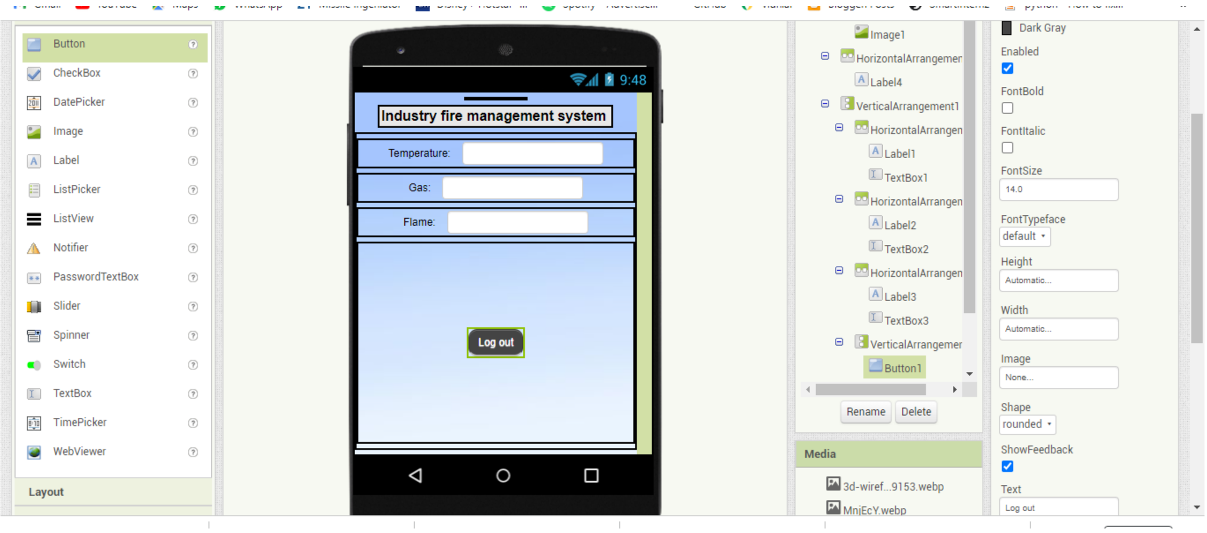
OpenScreenAnimation
Default

ScreenOrientation
Unspecified

Scrollable
☑

ShowStatusBar
□

SCREEN 3:



Dark Gray

Enabled
☑

FontBold
□

FontItalic
□

FontSize
14.0

FontTypeface
default

Height
Automatic...

Width
Automatic...

Image
None...

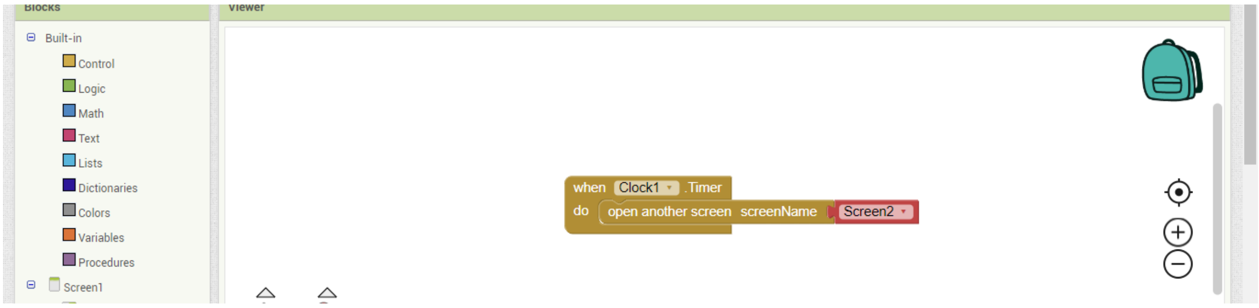
Shape
rounded

ShowFeedback
☑

Text
Log out

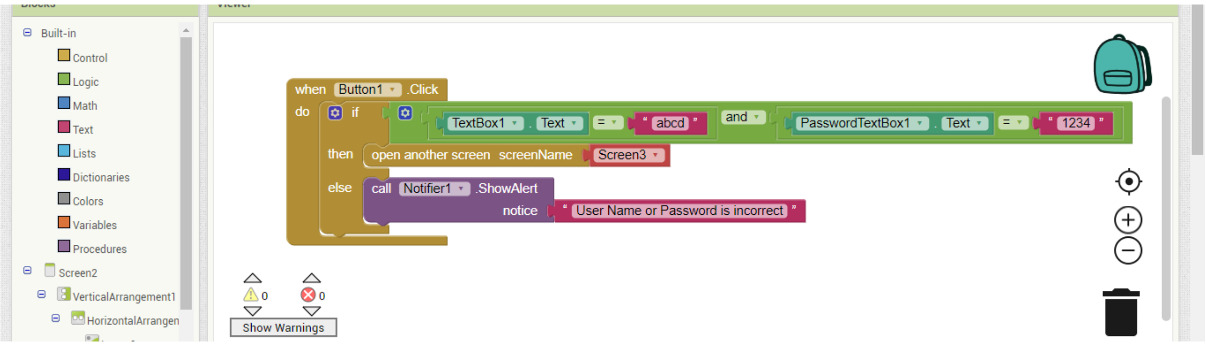
BACKEND BLOCKS:

SCREEN 1:



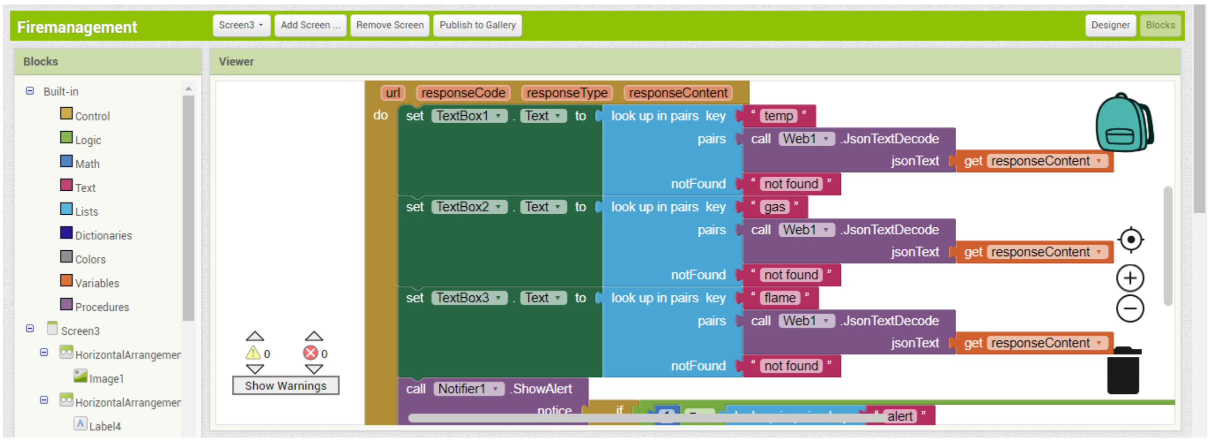
```
when Clock1 .Timer
do  open another screen  screenName  Screen2
```

SCREEN 2:

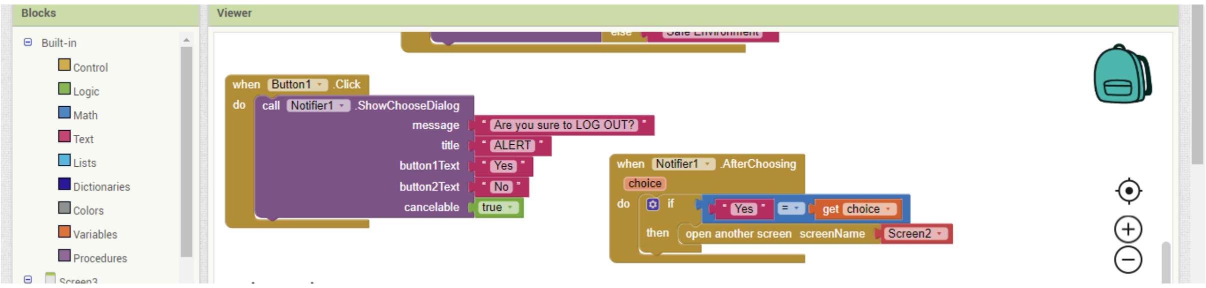


```
when Button1 .Click
do  if  TextBox1 . Text  =  " abcd "  and  PasswordTextBox1 . Text  =  " 1234 "
    then  open another screen  screenName  Screen3
    else  call Notifier1 .ShowAlert
                          notice  " User Name or Password is incorrect "
```

SCREEN 3:

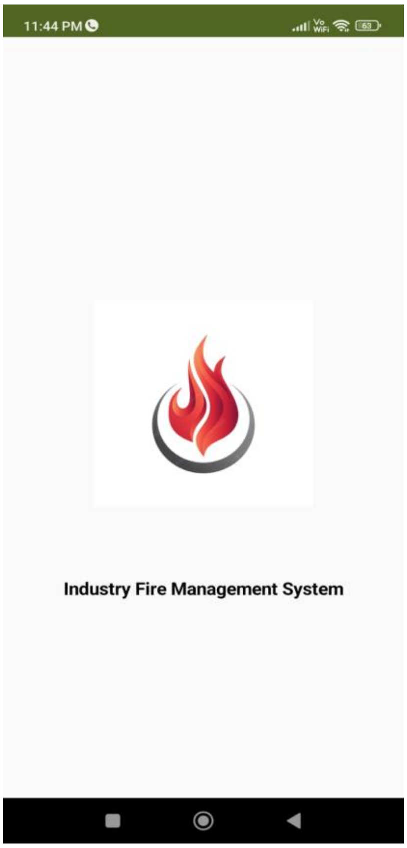


```
url  responseCode  responseType  responseContent
do  set TextBox1 . Text to  look up in pairs  key  " temp "
                                               pairs  call Web1 .JsonTextDecode
                                                                  jsonText  get responseContent
                                               notFound  " not found "
    set TextBox2 . Text to  look up in pairs  key  " gas "
                                               pairs  call Web1 .JsonTextDecode
                                                                  jsonText  get responseContent
                                               notFound  " not found "
    set TextBox3 . Text to  look up in pairs  key  " flame "
                                               pairs  call Web1 .JsonTextDecode
                                                                  jsonText  get responseContent
                                               notFound  " not found "
    call Notifier1 .ShowAlert
                    notice    if  ...  alert "
```

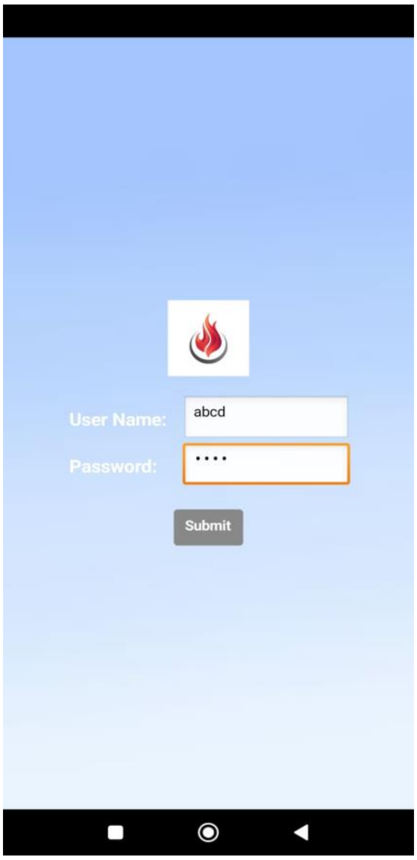


```
when Button1 .Click
do  call Notifier1 .ShowChooseDialog
                    message      " Are you sure to LOG OUT? "
                    title        " ALERT "
                    button1Text  " Yes "
                    button2Text  " No "
                    cancelable   true

when Notifier1 .AfterChoosing
  choice
do  if  " Yes " = get choice
    then  open another screen  screenName  " Screen2 "
```

MIT MOBILE APP OUTPUT:



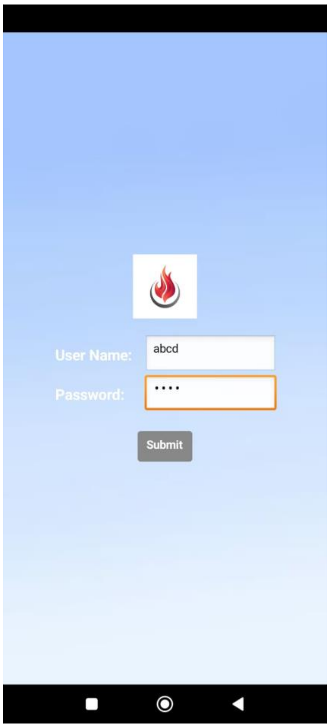
Industry Fire Management System



User Name: abcd

Password: ••••

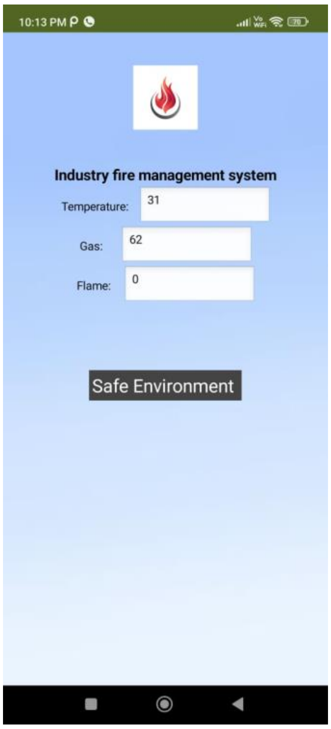
MIT App Output in Screen:



User Name: abcd

Password: ••••

Submit



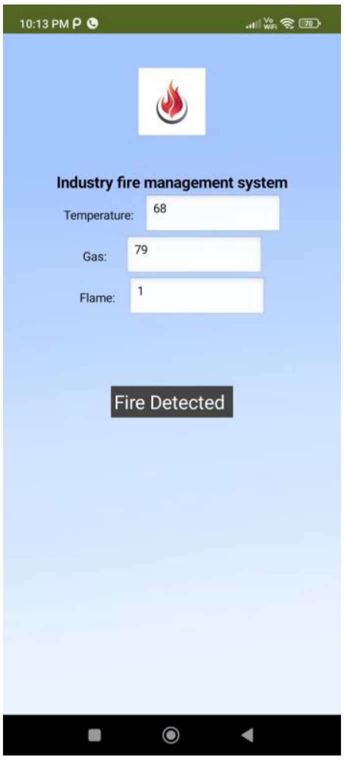
Industry fire management system

Temperature: 31

Gas: 62

Flame: 0

Safe Environment



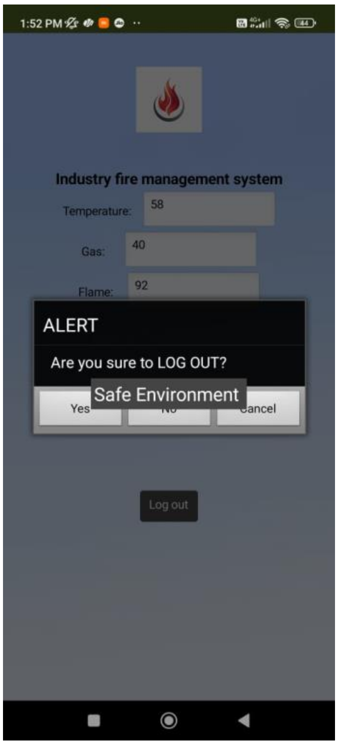
Industry fire management system

Temperature: 68

Gas: 79

Flame: 1

Fire Detected



Industry fire management system

Temperature: 58

Gas: 40

Flame: 92

ALERT

Are you sure to LOG OUT?

Safe Environment

Yes | No | Cancel

Log out