Mini Project Report

On

Route Delay Notifier

Submitted as partial fulfillment for the award of

BACHELOR OF TECHNOLOGY

DEGREE

Session 2020-21
in

Information Technology

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Student's Declaration

I hereby declare that the work being presented in this report entitled **"ROUTE DELAY NOTIFIER"** is an authentic record of my own work carried out under the supervision of Ms. **Nandita Goyal , Assistant Professor, Information Technology.**

The matter embodied in this report has not been submitted by me for the award of any other degree.

Date: December 5, 2020

Signature of student

Name: Hitesh Agrawal
Roll No. : 1900320130074
Department: Information Technology

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

Signature of HOD
(Name: Mr. Amit Sinha)

(Information Technology)

Signature of Coordinator
(Name: Ms. Nandita Goyal)

(Assistant Professor)

(Information Technology)

Date: December 5, 2020

Acknowledgement

The satisfaction that accompanies the successful completion of this project would be in complete without the mention of the people who made it possible, without whose constant guidance and encouragement would have made efforts go in vain. I consider myself privileged to express gratitude and respect towards all those who guided us through the completion of this project.

I convey thanks to my project guide Ms.Nandita Goyal of Information Technology Department for providing encouragement, constant support and guidance which was of a great help to complete this project successfully.

Last but not the least, we wish to thank our parents for financing our studies in this college as well as for constantly encouraging us to learn engineering. Their personal sacrifice in providing this opportunity to learn engineering is gratefully acknowledged.

Signature of student

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Table Of Content

1. INTRODUCTION

My project name is " **Route Delay Notifier**" .The basic idea behind my project is to automate the process through some basic programming. I have used python programming language in this project.

1.1. Purpose:

- It is real-life problem solving program.
- Its purpose is to save time of an individual by automatically sending an email without using g-mail applicaton.

1.2.System Overview:

In my project , I have used two libraries:

Requests and smtplib.

The **requests module** allows you to send HTTP **requests** using Python. The HTTP **request** returns a Response Object with all the response data. And the data is fetch through **Distance matrix API.**

Python provides **smtplib** module, which defines an SMTP client session object that can be used to send mail to any Internet machine.

2. Problem Statement

We encounter a lot of problems to inform our officials on getting late while travelling to our working place. And sometime unfortunately we forget to inform and get scolded for that. So this project helps to **send mail** to the selected recipient automatically and also **calculate the travel time** between the current place and working place. And if the travel time exceeds the limit then the notification will be sent via gmail.

3.Project Objective

Objective of this project is to **automate the process and make an ease to the people's life by reducing their work.**

It is an automated python progam which operates on real time basis.

It is an anytime anywhere operation to take place.

This project is **helpful to every age group**. The school/college students can use this program for themselves to calculate their travel time and to inform the institution on getting late and save themselves form being scolded on not informing the faculty.

So as , company employee can also use this program to inform their company office on getting late.

That's why this is an useful program for everyone and make our life a bit easier and flowing.

4. Project Methodology

The basic methodology behind my project is :

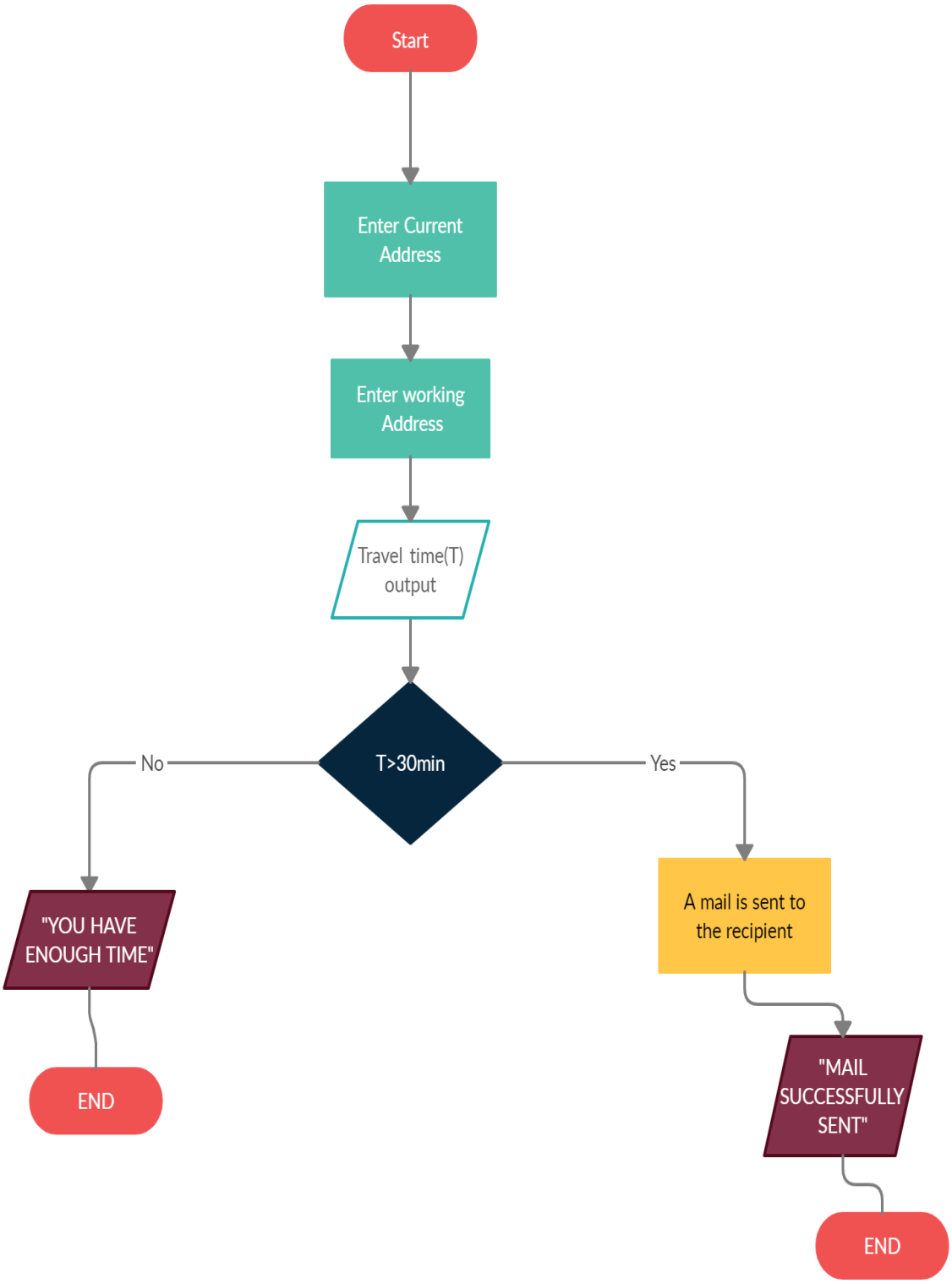


Fig.1. float chart of working of the project.

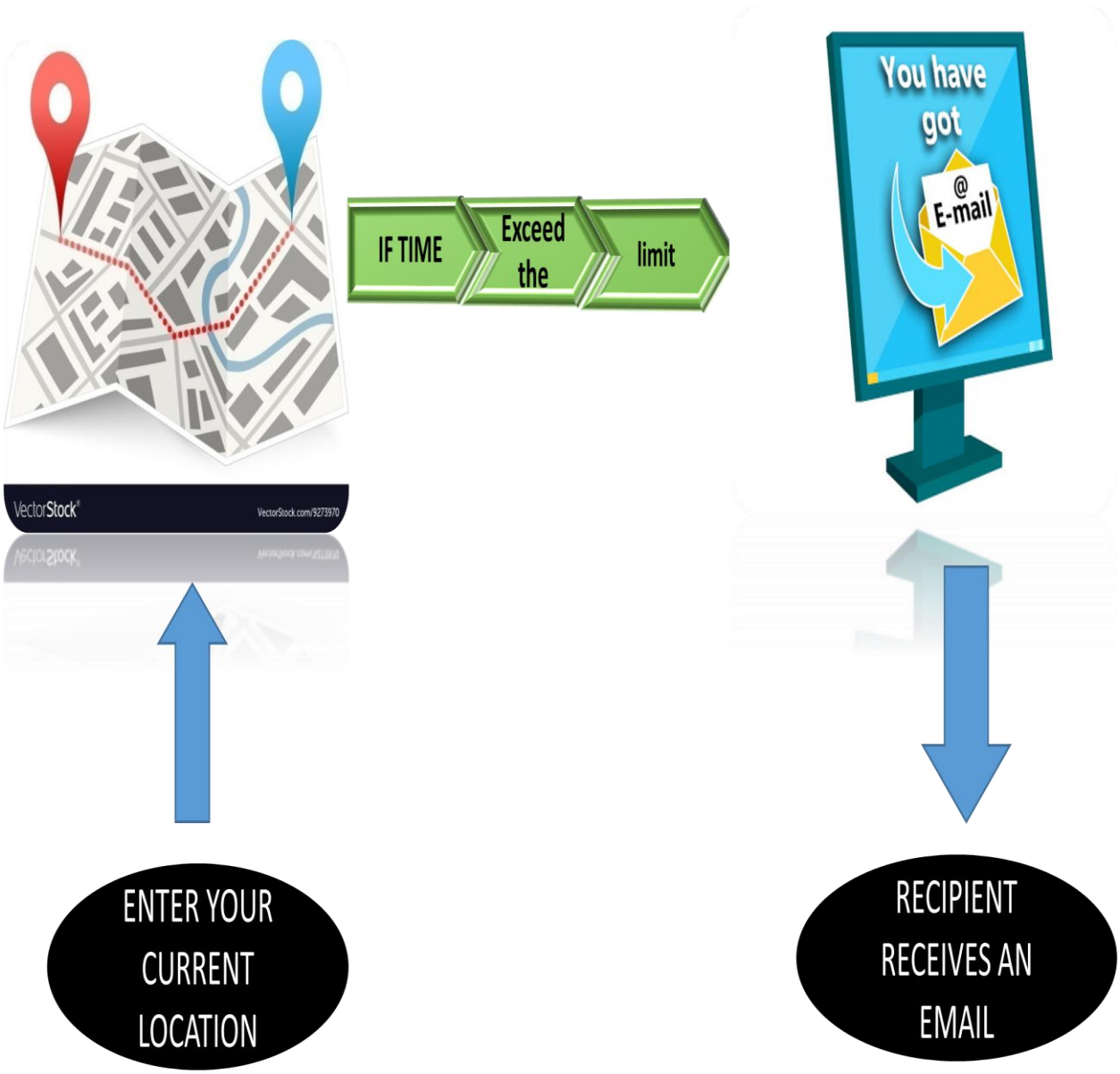


Fig.2. Methodology of the project.

5. Details of Project Work

I pick my project idea from the automation with python,

Now-a-days automation is itself a huge domain to talk about and it requirement is gradually increasing a among everyday life.

5.1. IT Automation:-

IT automation is the use of software to create repeatable instructions and processes to replace or reduce human interaction with IT systems.

It is helpul in time saving of people and with automation the risk of errors become also less.

5.2. Libraries Used:-

In this project , two libraries were used:-

5.2.1. Requests:-

SYNTAX: requests.methodname(params)

Requests is a Python module that you can use to send all kinds of HTTP requests. It is an easy-to-use library with a lot of features ranging from passing parameters in URLs to sending custom headers and SSL Verification.

The **requests module** allows you to send HTTP **requests** using Python. The HTTP **request** returns a Response Object with all the response data (content, encoding, status, etc).

5.2.2. Smtplib:-

SYNTAX: smtplib.SMTP("smtp.gmail.com", 587)

Simple Mail Transfer Protocol (SMTP) is a protocol, which handles sending e-mail and routing e-mail between mail servers.

Python provides **smtplib** module, which defines an SMTP client session object that can be used to send mail to any Internet machine with an SMTP or ESMTP listener daemon.

Here is a simple syntax to create one SMTP object, which can later be used to send an e-mail −

```
import smtplib


smtpObj = smtplib.SMTP( [host [, port [,
local_hostname]]] )
```

Here is the detail of the parameters −

- **host** − This is the host running your SMTP server. You can specify IP address of the host or a domain name like tutorialspoint.com. This is optional argument.
- **port** − If you are providing *host* argument, then you need to specify a port, where SMTP server is listening. Here it is **587**.

- **local_hostname** Host Name - This is the server name for your SMTP server. For example, Gmail's hostname is: **smtp.gmail.com**.
- An SMTP object has an instance method called **sendmail**, which is typically used to do the work of mailing a message. It takes three parameters −
  - The *sender* − A string with the address of the sender.
  - The *receivers* − A list of strings, one for each recipient.
  - The *message* − A message as a string formatted as specified in the various RFCs.

5.3. Working of the project:-

When you will run the code, then it will **ask for two addresses:** Current Address and Working Address consecutively.

After entering both the addresses, with the help of **requests library** it will send a **HTTP request** to the server and using **Distance matrix API** , you will get response that will be stored .That's how the **travel time** is calculated between places.

Now if the calculated time is exceeds the time limit set by the user then it will automatically send a mail to the selective recipients.To complete this operation it uses **the smptlib library**. And after completion of process , a message will be shown that **"the mail is successfully sent".**

But if the calculated time does not exceeds the set limit then a message **"you have enough time"** will be shown on the screen.

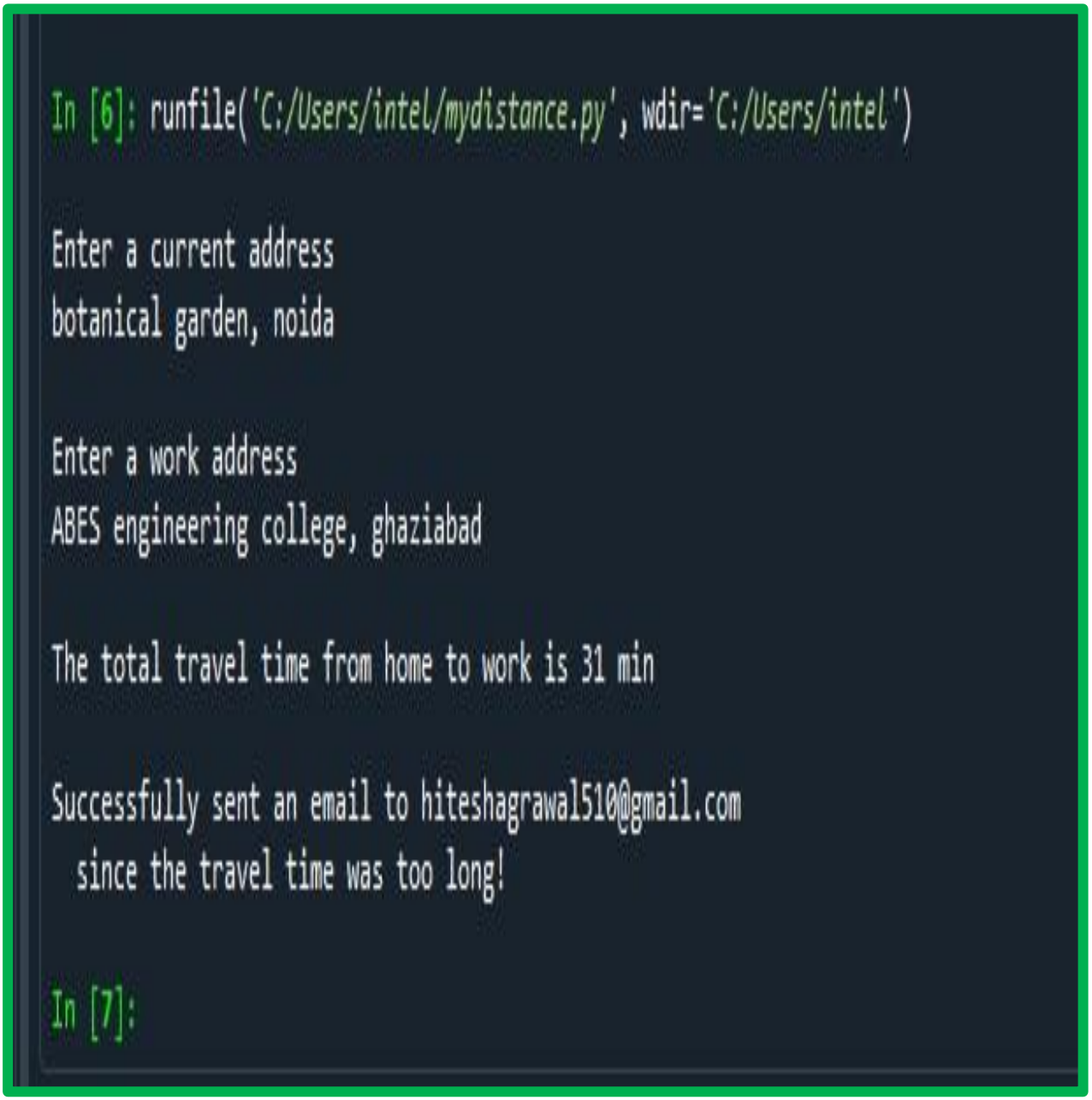
6. Results and Discussion

The program runs successfully without any type of trace back, and I got the output which I expected.

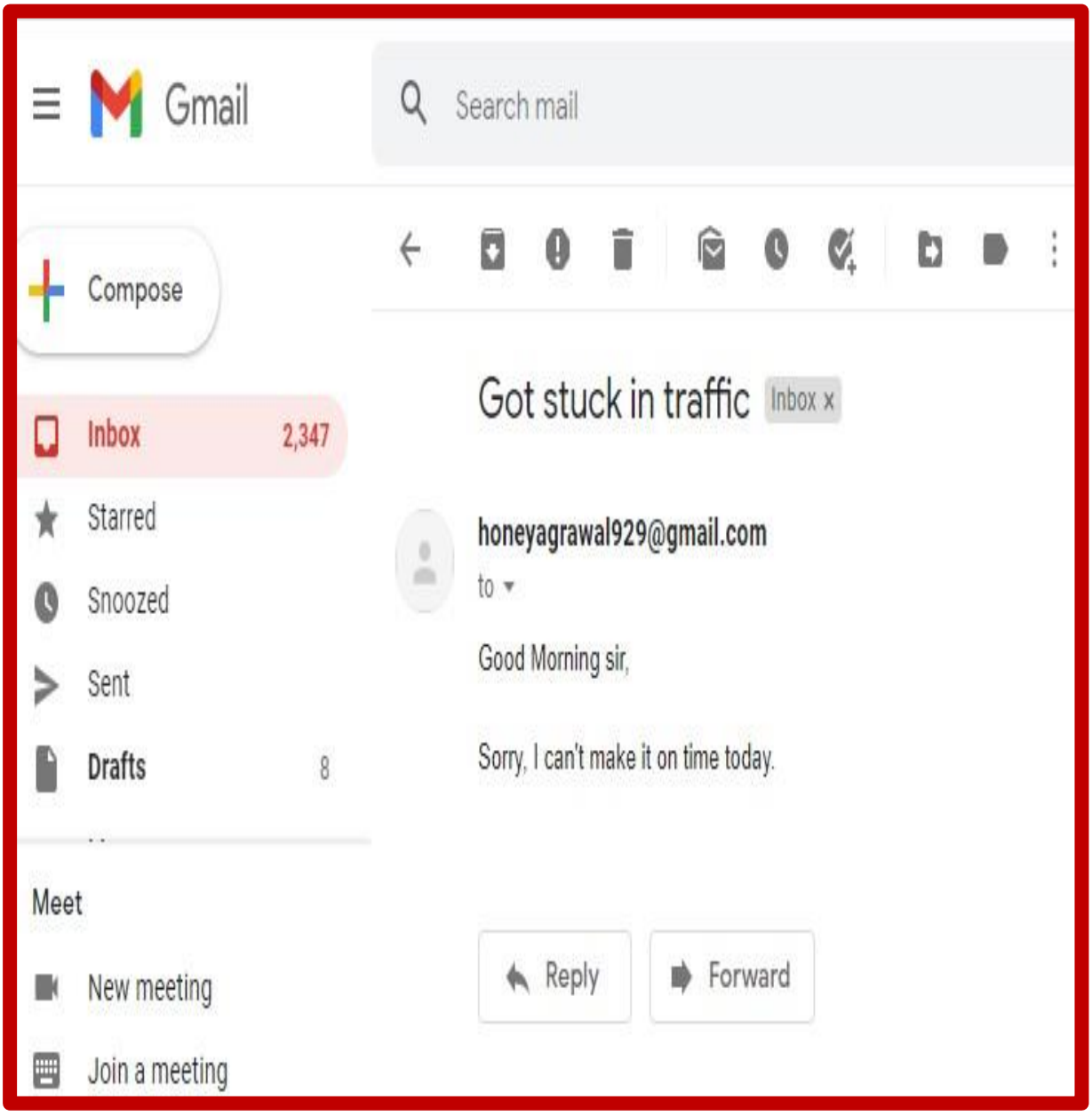
To avoid any type problem, please follow the rules clearly mentioned on the screen itself.

Before using this program, please check the text files (that are used in the program) that whether they contain text or not.

Here it is the resulted first output screen with travel time:-



And here it is another resulted output screen at the recipient side after successfully deliver of mail:-



7.Conclusion and Future Scope

Future scope :-

This project can be merged into some app or website for better user interface and ease of user and can widely be used by any person in this world.

We can **add more functionalities** by linking other operations.

Conclusion:-

- It is an **automated** python progam which operates on real time basis.
- It is an anytime anywhere operation to take place.
- Its purpose is **to save time** of an individual by automatically sending an email without using g-mail applicaton.

References

- https://www.youtube.com/channel/UCxVRDu9ujwOrmDxu72V3ujQ
- https://distancematrix.ai
- Lectures of the course (Getting started with python) from Coursera.
- https://stackoverflow.com

Appendix 1:

```
import requests
import smtplib

# API key

#everyone must have a unique API key for distance matrix

api_key = "jcBNLNMF5Yee3yJJK09RRWuha5Ig4"


# home address input
home = input("Enter a current address\n")

# work address input
work = input("Enter a work address\n")

# base url
url = "https://api.distancematrix.ai/maps/api/distancematrix/json?"
```

```
# get response
r = requests.get(url + "origins=" + home + "&destinations=" + work +
                 "&key=" + api_key)

# return time as text and as seconds

time = r.json()["rows"][0]["elements"][0]["duration"]["text"]

seconds = r.json()["rows"][0]["elements"][0]["duration"]["value"]


# print the travel time
print("\nThe total travel time from home to work is", time)




#code for mailing
```

```
# check if travel time is more than .5 hour

if (seconds < 1800):
    print("you have enough time.")


if (seconds > 1800):

    # email constraints

    sender = "sendermail@gmail.com"

    recipient = "recipientmail@gmail.com"

    subject = "Got stuck in traffic"

    message = "Good Morning sir,\n\nSorry,I can't make it on time"

    # format email
    email = "Subject: {}\n\n{}".format(subject, message)
```

```
# get sender password
# password_file = open("password.txt", "r")
# password = password_file.readline()
# password_file.close()

# creates SMTP session
s = smtplib.SMTP("smtp.gmail.com", 587)

# start TLS for security
s.starttls()

# authentication
s.login(sender, "password123.")

# sending the mail
s.sendmail(sender, recipient, email)

# terminating the session
s.quit()

# success message
print("\nSuccessfully sent an email to", recipient)
print("since  the travel time was too long!")
```