CSE 586 Distributed Systems Project 1 Phase 2

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Description:

The aim of this phase of the project is to implement a centralized version of a pub-sub system using docker. For this, a python Flask application has been created acts as the centralized broker. Real time data from Twitter accounts of Ubisoft games Rainbow6, Farcry and Assassins Creed have been collected using Twitter API and they become the publishers. The publisher details are stored in the MySQLdb. The subscribers' details such as name, email and topics of interests are also collected and stored in the MySQLdb. The subscribers are then notified with the information collected from publishers and notified based on their topic of interest and notified through the email provided. The other standard functions of a pub-sub system such as unsubscribe(), advertise() and deadvertise() are also implemented. The project also utilizes two separate Docker containers, one for centralized broker and the other for MySQLdb.

Design:

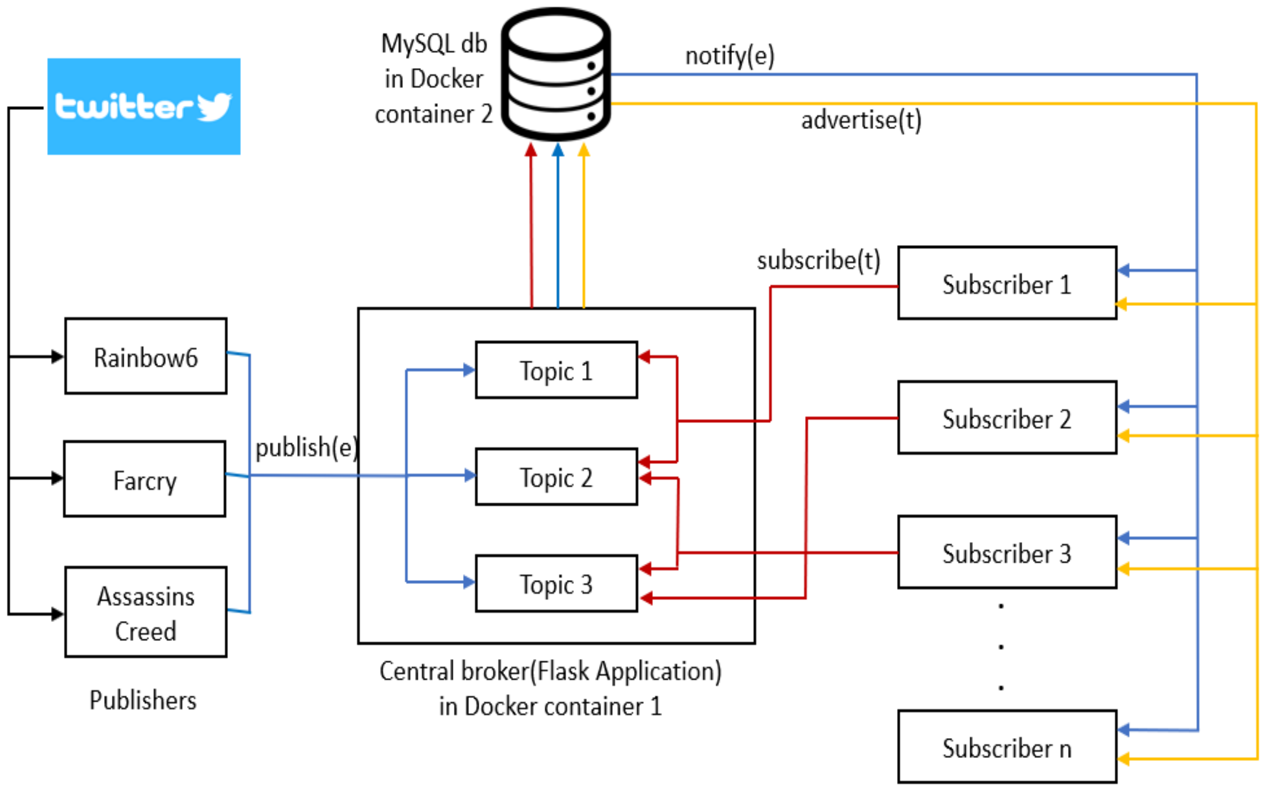


Figure 1: Architecture Diagram of the Project

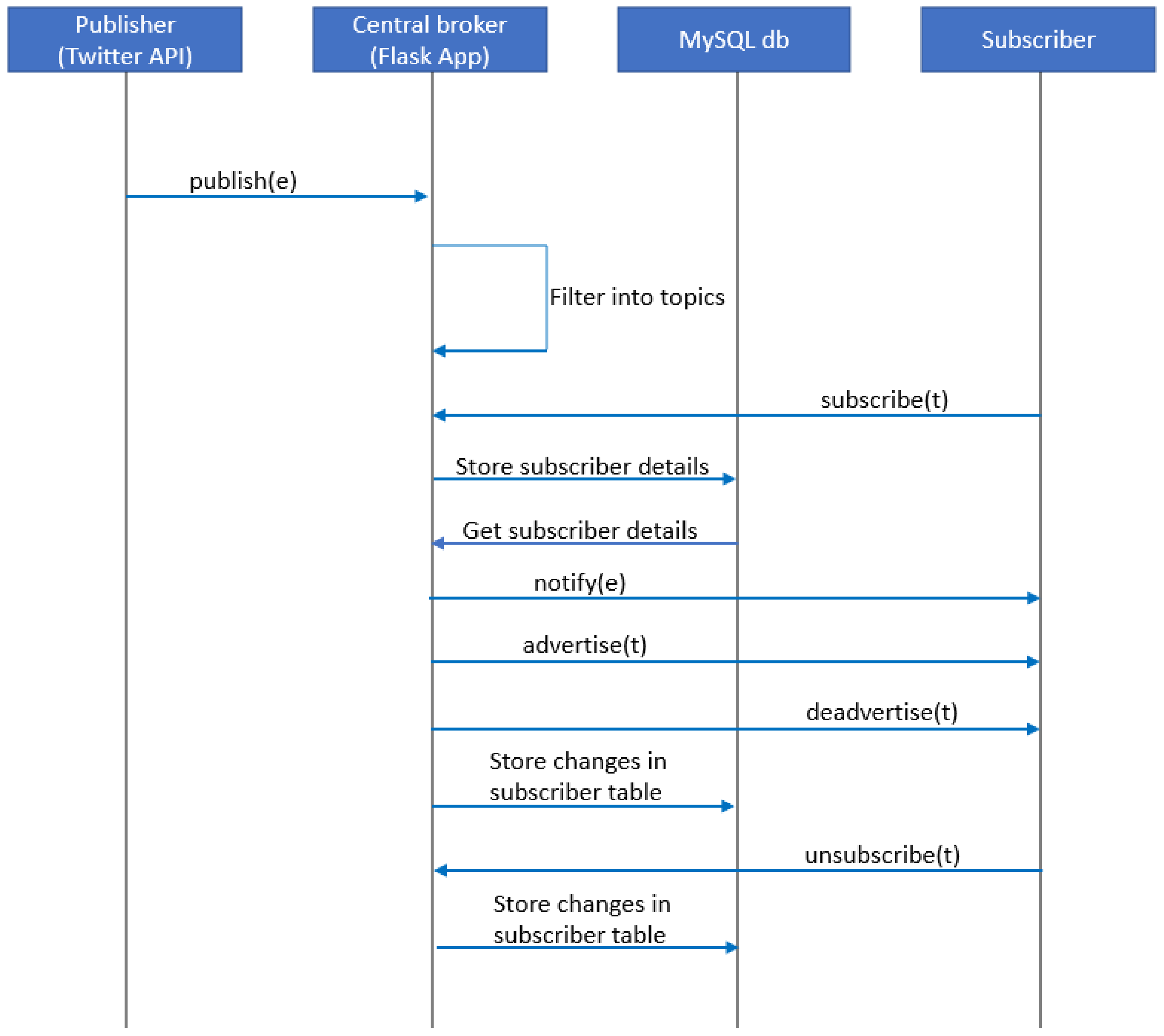


Figure 2: Sequence Diagram of the project

Implementation:

The project is implemented in Python 3 and the following libraries are used,

- Flask web framework
- Flask_mail to send email to subscribers
- Tweepy to access the Twitter API

MySQL database service is used to store and retrieve data. The user interfaces are developed using HTML.

- The application first displays the home page on which 4 buttons are displayed each to execute the standard pub-sub functionalities such as publish(), notify(), subscribe()/unsubscribe(), advertise()/deadvertise()

- Upon clicking the Subscribe/Unsubscribe button, the application displays a new page with the provisions to enter name, email, topic of interest. The user then must choose between subscribe or unsubscribe option so that the desired functionality can be achieved. Necessary changes are also made in the MySQL database. This is implemented in the subscriptions() method of the source code.
- Upon entering the wrong details or if details entered don't match with the database, an error page is displayed.
- The entire subscriber details that are maintained in the database can be viewed by choosing the Subscriptions option on the home page.
- On clicking the Publish button on the home page, and the user is taken a new page where they are given the option to choose between publishers. Upon selecting one, the notify() method in the source is called. This method collects the subscriber details from the database based on the topic of interest collected earlier and sends an email. The email contains tweets collected using the Twitter API.
- Finally, the advertise/deadvertise functionality is implemented in the mail_success() method of the source code. Upon clicking the 'Advertise/Deadvertise' button the in the home page, the app displays a new page with the provision to choose a topic and to choose between advertise or deadvertise options. On clicking the 'Send Notifications' button, necessary emails are sent to the subscriber based on the options chosen here and the subscriber details stored in the database.

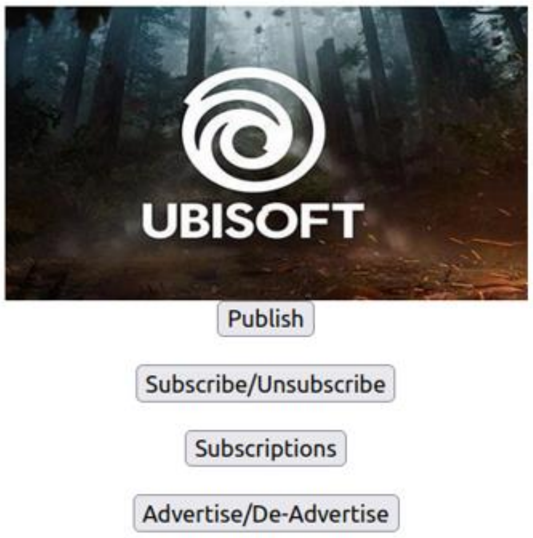
Deployment and Execution:

- Install Docker and Docker compose (if using Linux system)
- Open a terminal window and move to the location of the source code and enter the command,

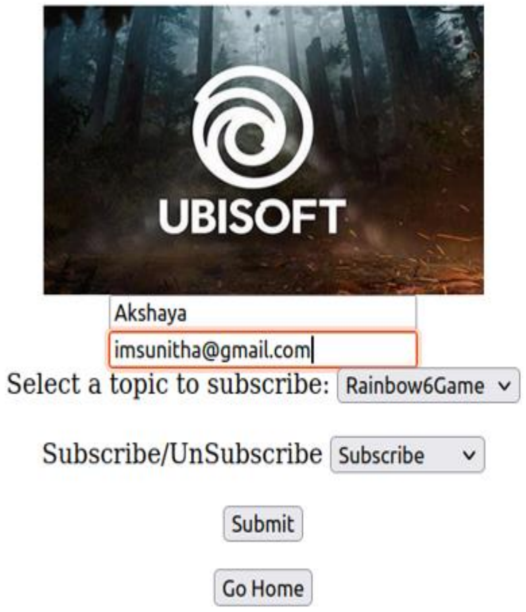
```
$ docker-compose up
```

- Open a new brower window and open the link,

  //localhost:5000/
- The home of the application is displayed



- Click Subscribe/Unsubscribe button and enter the details in the new web page displayed (Please enter only gmail ids in the email option).Select Subscribe option from the dropdown list. Click Submit



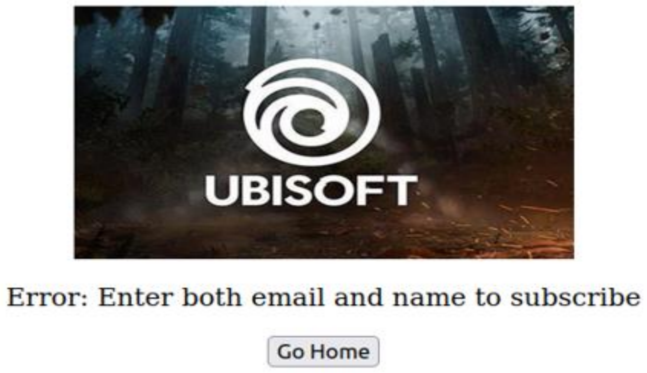
Akshaya

imsunitha@gmail.com

Select a topic to subscribe: Rainbow6Game

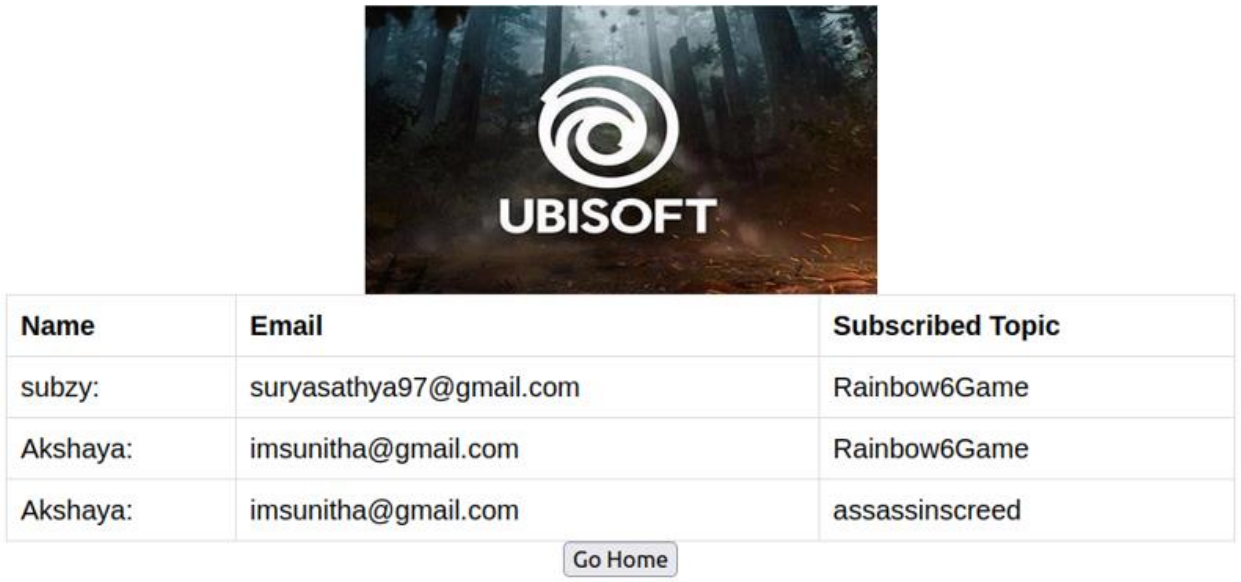
Subscribe/UnSubscribe Subscribe

- If wrong information is entered during subcribing an error page will be displayed



Error: Enter both email and name to subscribe

- Click the Subscriptions button to view the subscriber details



Name	Email	Subscribed Topic
subzy:	suryasathya97@gmail.com	Rainbow6Game
Akshaya:	imsunitha@gmail.com	Rainbow6Game
Akshaya:	imsunitha@gmail.com	assassinscreed

- Now click the publish button, select a topic and click the publish button. Necessary emails will be sent to the subscriber of that topic.(Kindly check the spam folder too while checking for mails)

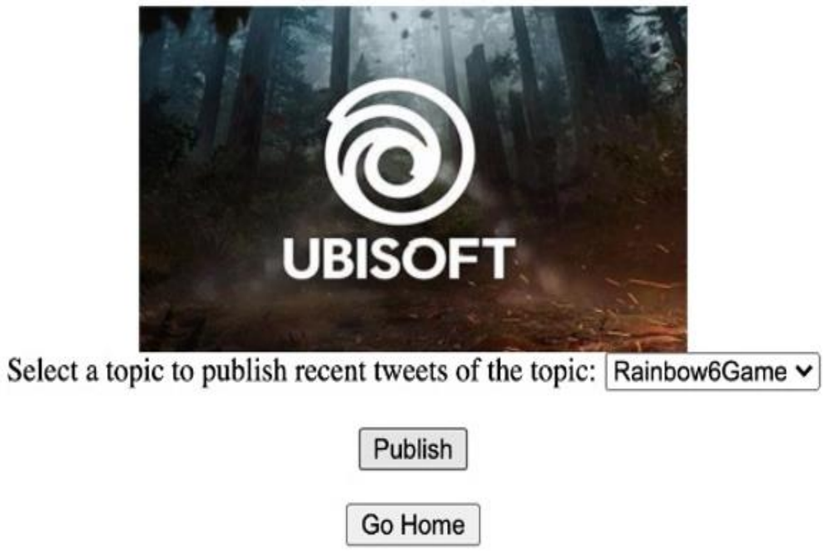
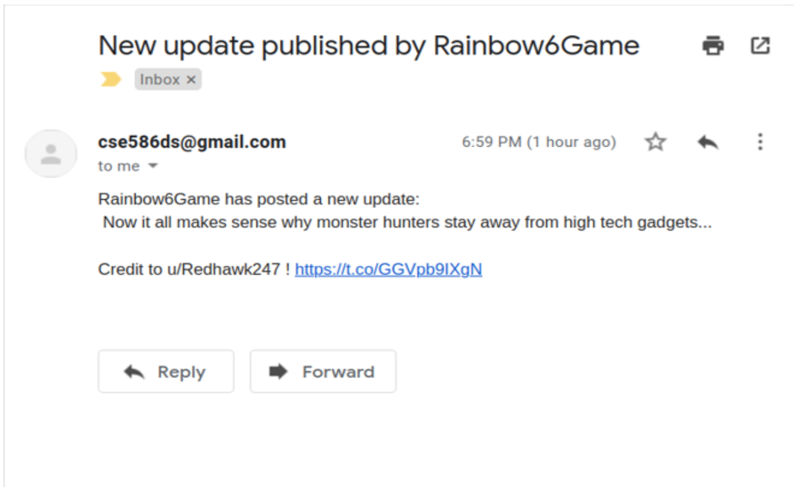

UBISOFT
Select a topic to publish recent tweets of the topic: Rainbow6Game
Publish
Go Home

Figure: Page displayed in the application



New update published by Rainbow6Game

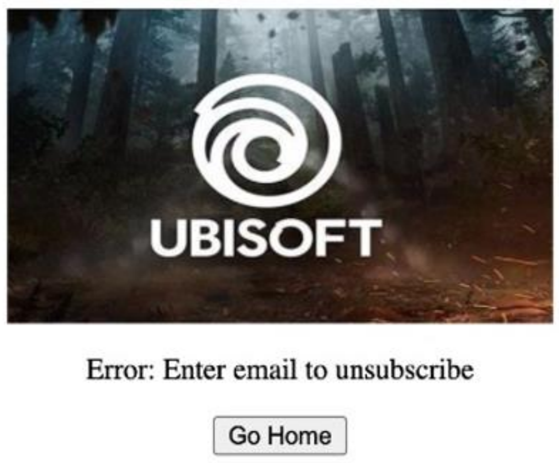
cse586ds@gmail.com 6:59 PM (1 hour ago)
to me

Rainbow6Game has posted a new update:
Now it all makes sense why monster hunters stay away from high tech gadgets...

Credit to u/Redhawk247 ! https://t.co/GGVpb9IXgN

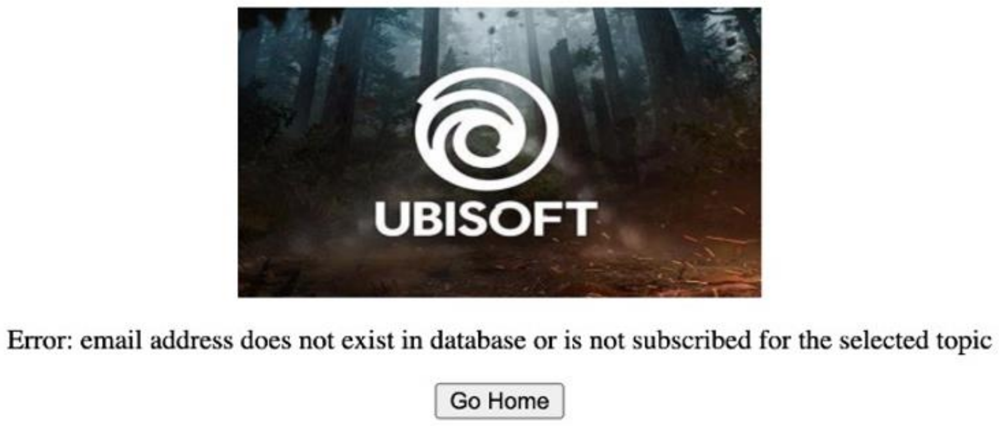
Figure: email received

- To unsubscribe from a given topic, click the Subscribe/Unsubscribe button. Enter a valid email which exists in the database and choose the topic to which the email was subscribed, else error page will be displayed. Select the unsubscribe option from the dropdown displayed and click submit. When wrong information is entered, error page is displayed.



Error: Enter email to unsubscribe

- If email-id entered to unsubscribe is not present in the database, the following error page is displayed to the user



Error: email address does not exist in database or is not subscribed for the selected topic

- To test the advertise and deadvertise funtionality, click the Advertise/Deadvertise button in the home page. Select a topic from the drop-down menu and also advertise or deadvertise option from the second drop-down menu. Click the Send Notification button. Necessary email will be sent based on the options chosen and also from the subscriber details in the database.(Kindly check the spam folder while looking for adertise/deadvertise mails)

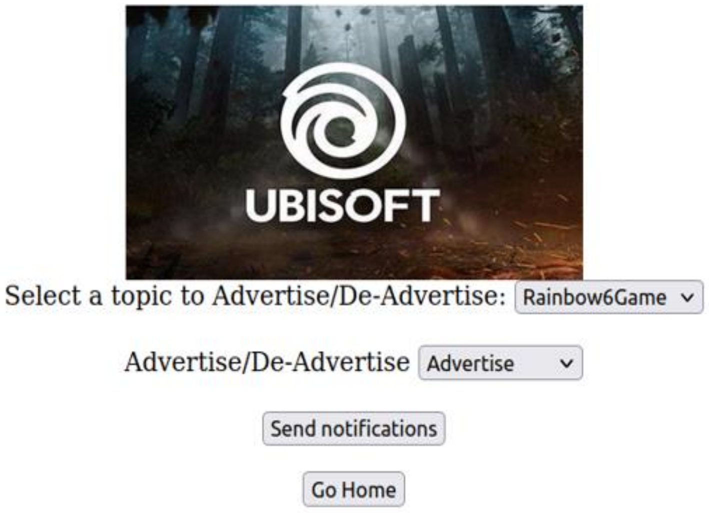
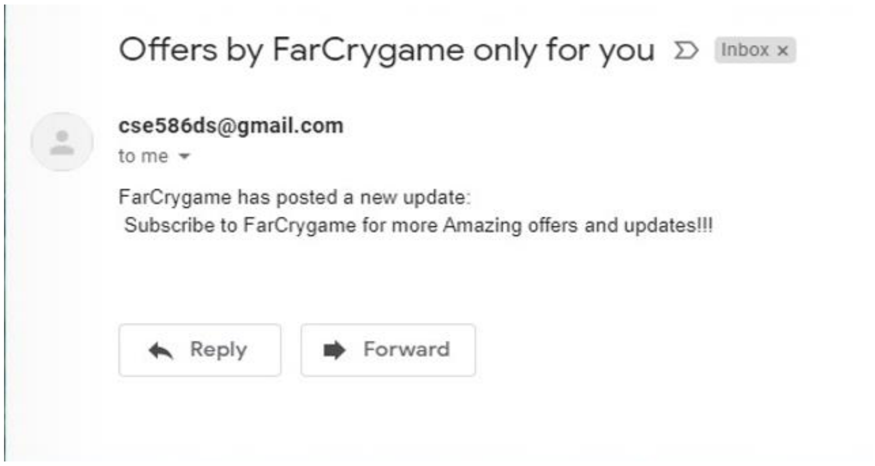

UBISOFT
Select a topic to Advertise/De-Advertise: Rainbow6Game
Advertise/De-Advertise Advertise
Send notifications
Go Home

Figure: Page displayed in the application

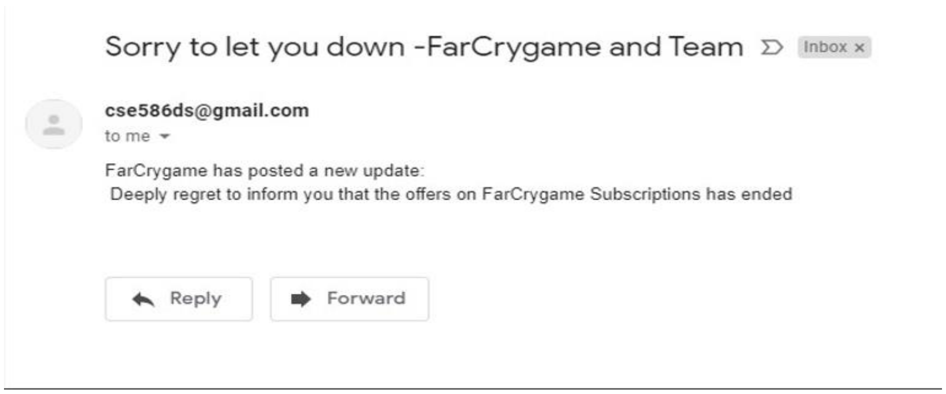


Offers by FarCrygame only for you

cse586ds@gmail.com
to me

FarCrygame has posted a new update:
Subscribe to FarCrygame for more Amazing offers and updates!!!

Figure: Advertise mail received



Sorry to let you down -FarCrygame and Team

cse586ds@gmail.com
to me

FarCrygame has posted a new update:
Deeply regret to inform you that the offers on FarCrygame Subscriptions has ended

Figure: Deadvertise mail received