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Name :- Pratham Madhani.

Email :- prathamadhani28@gmail.com

Student of MIT Academy of Engineering, Pune

Subject :- Submission of Intern Assignment for Backend developers.

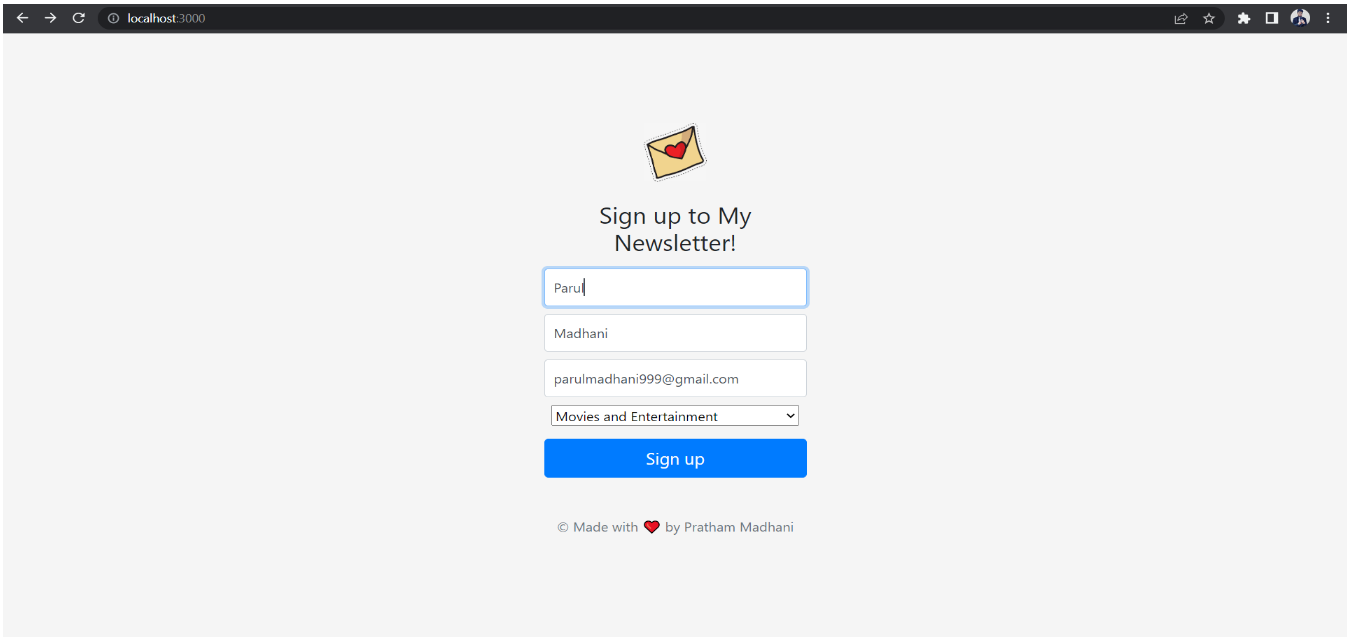
Problem statement: Newsletter Service

You are expected to make an app or a service which will send pre-decided content to a specific set of users[subscriber] at specified intervals/time.
This assignment is designed to test development and system design skills. We expect you to write a server-side app with proper setup documentation and send it across to us by uploading it to a public github repo.
Do mention the improvements and pitfalls of your solution. We'll reach out to you shortly post that.
You can use any language, library or framework of your choosing. We are looking for the thought process and technical decision making abilities. You can use google or copy-paste any code from stackoverflow as long as you cite where you got the code from.
You are expected to regularly commit the code with proper commit messages.

TechStack to complete the Intern backend assignment:

1. HTML.
2. CSS and BootStrap.
3. Node.js
4. MySQL (For Database).

So this is the user interface for the user to sign up to Newsletter.



Sign up to My Newsletter!

Parul

Madhani

parulmadhani999@gmail.com

Movies and Entertainment

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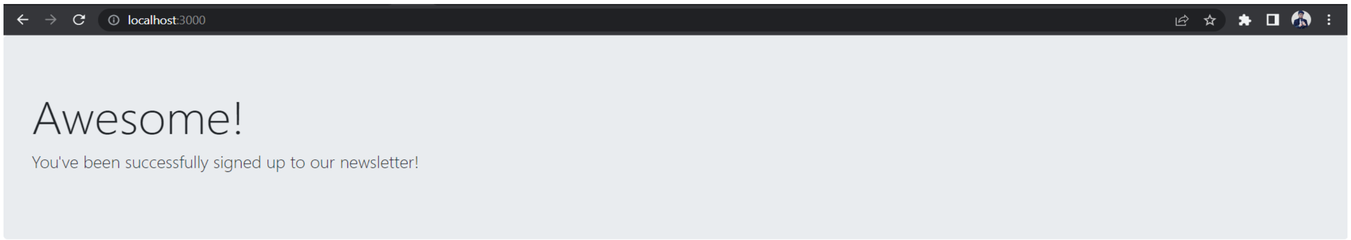
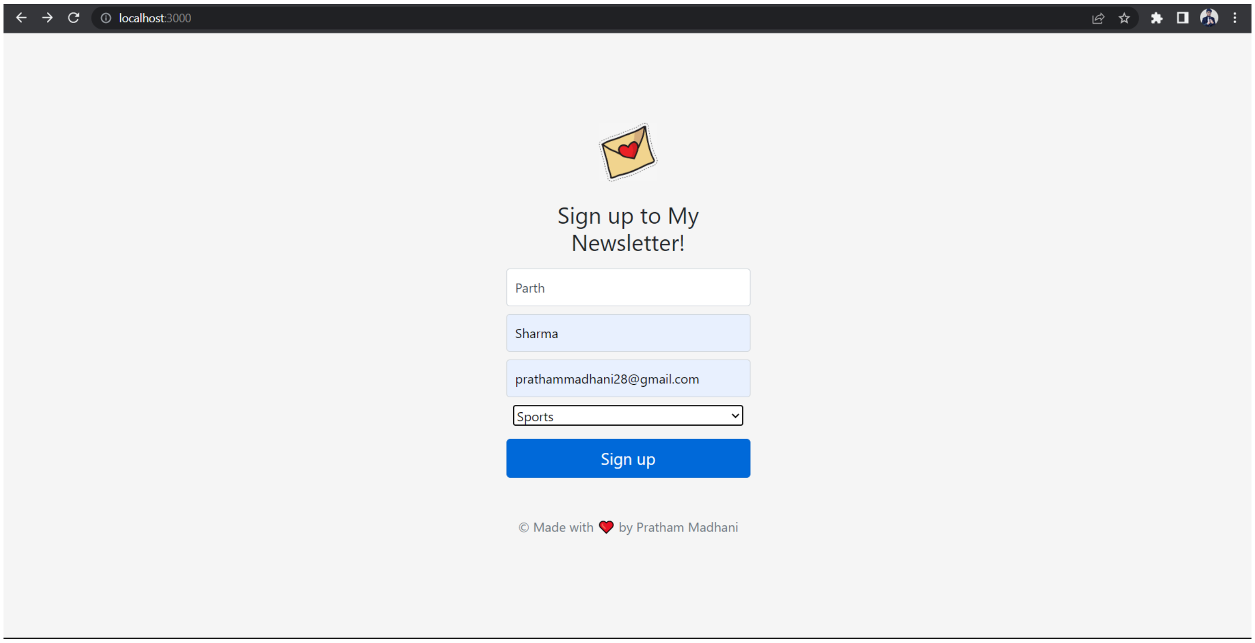
This is a success page once user is successfully subscribed to our newsletter service.



Awesome!

You've been successfully signed up to our newsletter!

This is how a user can fill his/her information to get subscribed to our newsletter service and can happily enjoy their content thereafter.



Sign up to My Newsletter!

Parth

Sharma

prathammadhani28@gmail.com

Sports

© Made with ❤ by Pratham Madhani

Database Usage Explanation :-

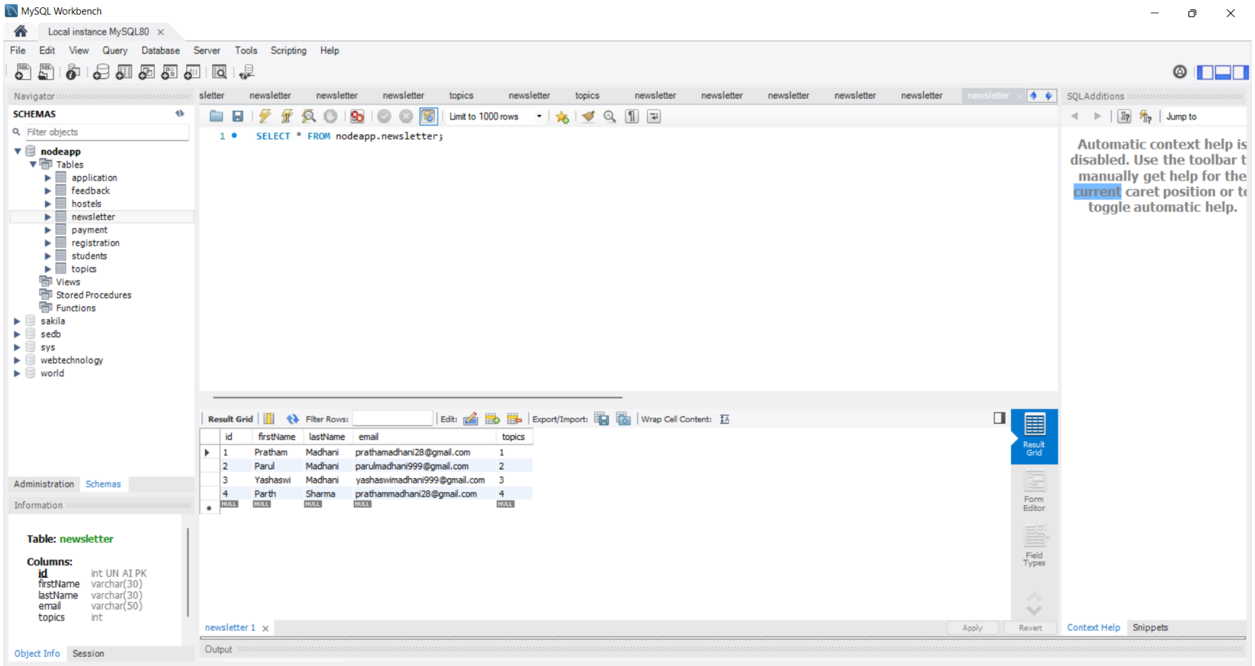
The name of the database that I have created for this project is ‘**nodeapp**’. I have created two tables for data storing purposes. Newsletter table will store the data of the subscribed user of the newsletter and topics table consist of predefined data that is to be sent to the user according to his interest in specific time interval.

Database Name :- nodeapp.

Table Name :- newsletter.

Query to create table :-

```
CREATE TABLE `nodeapp`.`newsletter` (
  `firstName` varchar(30) NOT NULL,
  `lastName` varchar(30) NOT NULL,
  `email` varchar(50)  NOT NULL,
  `topics` int(10)
);
```



```
SELECT * FROM nodeapp.newsletter;
```

id	firstName	lastName	email	topics
1	Pratham	Madhani	prathamadhani28@gmail.com	1
2	Parul	Madhani	parulmadhani999@gmail.com	2
3	Yashaswi	Madhani	yashaswimadhani999@gmail.com	3
4	Parth	Sharma	prathammadhani28@gmail.com	4
NULL	NULL	NULL	NULL	NULL

Table: newsletter

Columns:

id	int UN AI PK
firstName	varchar(30)
lastName	varchar(30)
email	varchar(50)
topics	int

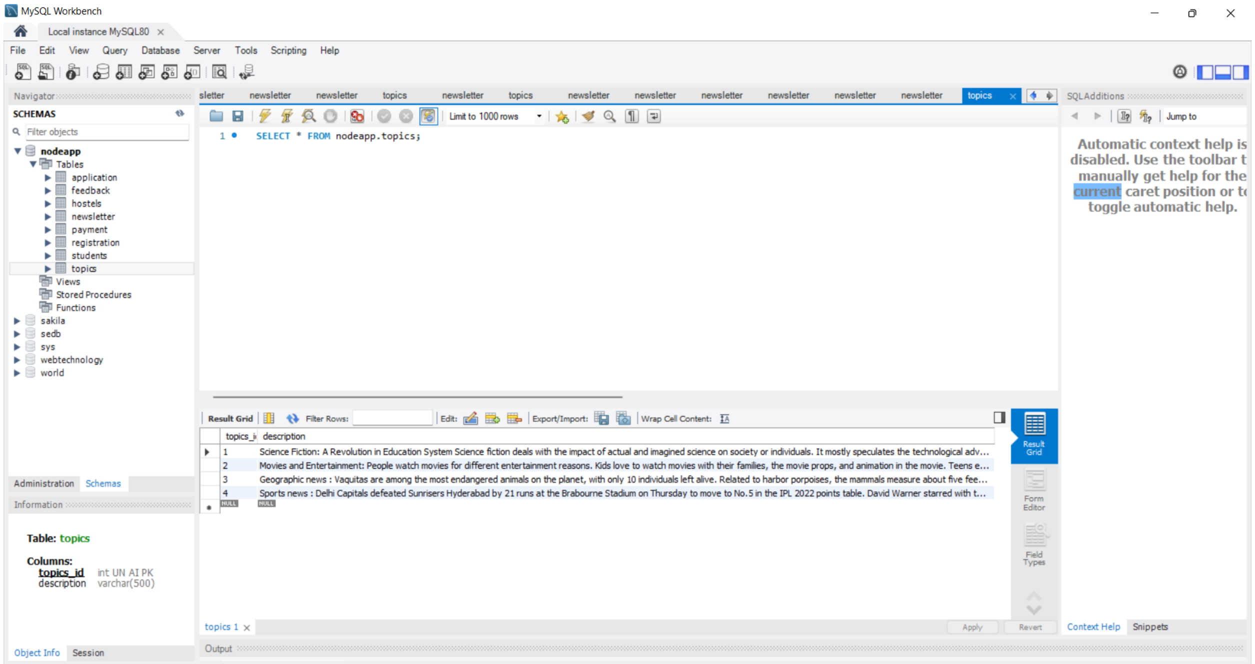
Automatic context help is disabled. Use the toolbar t manually get help for the current caret position or t toggle automatic help.

Database Name :- nodeapp.

Table Name :- topics.

Query to create table :-

```
CREATE TABLE `nodeapp`.`topics` (
  `topics_id` int(10) UNSIGNED PRIMARY KEY NOT NULL AUTO_INCREMENT,
 `description` varchar(500)
);
```



```
SELECT * FROM nodeapp.topics;
```

topics_i	description
1	Science Fiction: A Revolution in Education System Science fiction deals with the impact of actual and imagined science on society or individuals. It mostly speculates the technological adv...
2	Movies and Entertainment: People watch movies for different entertainment reasons. Kids love to watch movies with their families, the movie props, and animation in the movie. Teens e...
3	Geographic news : Vaquitas are among the most endangered animals on the planet, with only 10 individuals left alive. Related to harbor porpoises, the mammals measure about five fee...
4	Sports news : Delhi Capitals defeated Sunrisers Hyderabad by 21 runs at the Brabourne Stadium on Thursday to move to No.5 in the IPL 2022 points table. David Warner starred with t...
NULL	NULL

Table: topics

Columns:
topics_id int UN AI PK
description varchar(500)

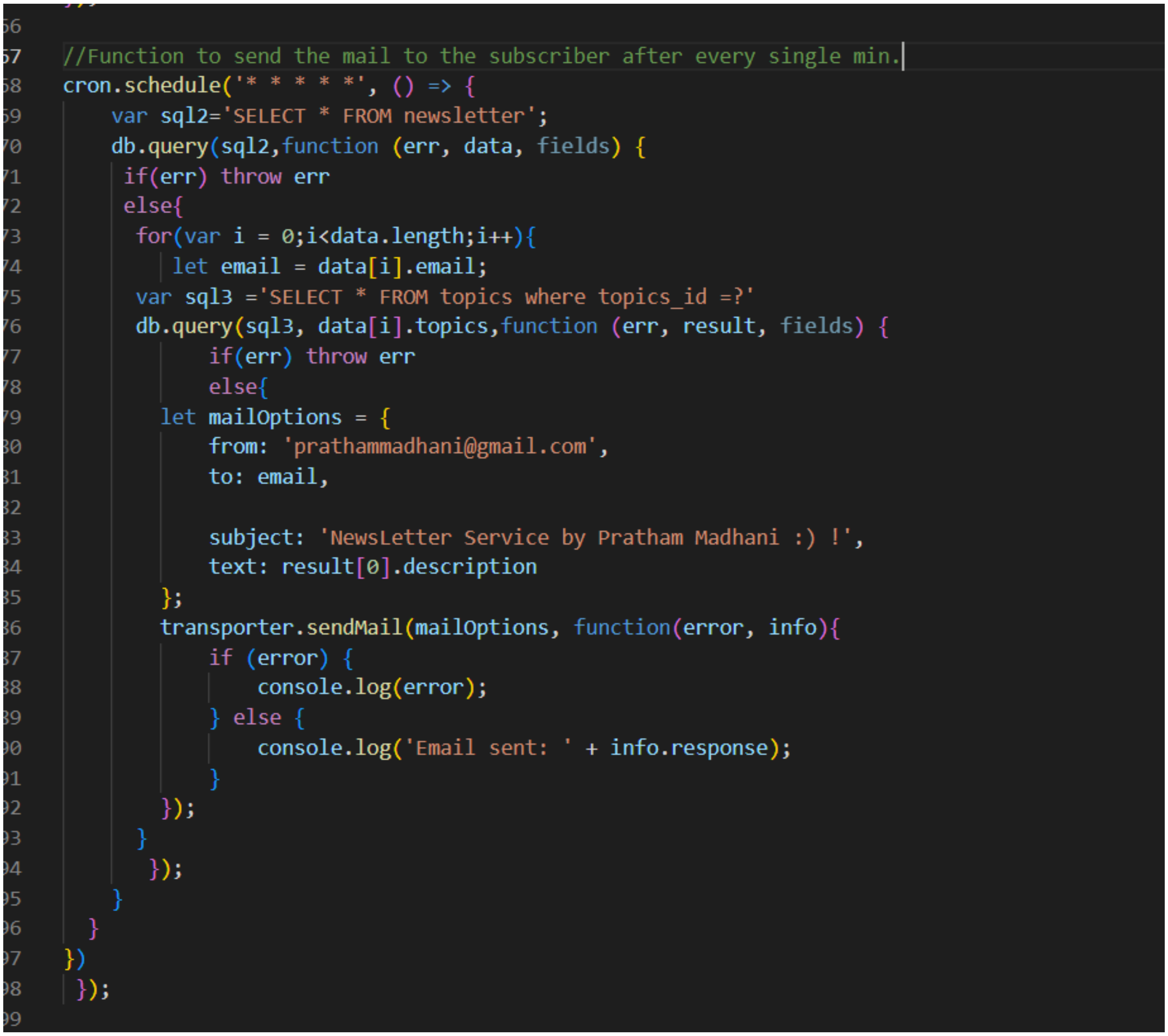
Automatic context help is disabled. Use the toolbar t manually get help for the current caret position or t toggle automatic help.

As we can see from the table's newsletter and topics, Pratham Madhani (Email id :- prathamadhani28@gmail.com) has selected Science and Fiction as its interest so will send him that content only after specific time intervals. Similarly, Parth Sharma (Email id:- prathammadhani@gmail.com) has selected Sports as field of interest, so will send him sport news content after specific time intervals.

Implementation Discussion :-

As previously mentioned in techstack, I have used HTML, CSS and BootStrap for FrontEnd, Nodejs for BackEnd and MySQL for Database.

The system will take FirstName, LastName, Email and the area of interest of the user to view the content related to their interest in future. These are the inputs taken from the user once the user subscribes to the newsletter service he/she will receive mail in a specific time interval. In my case, I have kept the time interval as one minute for testing purposes. But we can also make like one day, or after specific days, months, etc according to our requirement. I have used the **'nodemailer'** node module to send the mail to the subscribed user. Nodemailer is a module for Node.js applications to allow easy as cake email sending. And for the specific time intervals I have used the **'node-cron'** node module.The node-cron module is a tiny task scheduler in pure JavaScript for node.js based on GNU-crontab. This module allows you to schedule tasks in node.js using full crontab syntax.



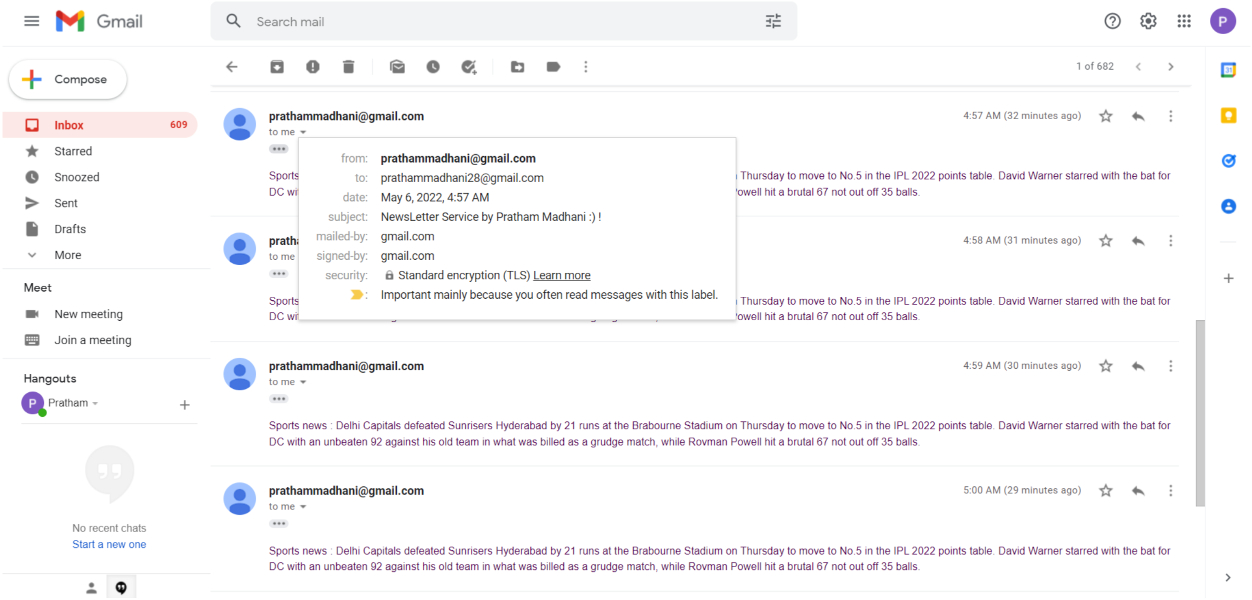
```
//Function to send the mail to the subscriber after every single min.
cron.schedule('* * * * *', () => {
    var sql2='SELECT * FROM newsletter';
    db.query(sql2,function (err, data, fields) {
     if(err) throw err
     else{
      for(var i = 0;i<data.length;i++){
         let email = data[i].email;
      var sql3 ='SELECT * FROM topics where topics_id =?'
      db.query(sql3, data[i].topics,function (err, result, fields) {
            if(err) throw err
            else{
        let mailOptions = {
            from: 'prathammadhani@gmail.com',
            to: email,

            subject: 'NewsLetter Service by Pratham Madhani :) !',
            text: result[0].description
        };
        transporter.sendMail(mailOptions, function(error, info){
            if (error) {
                console.log(error);
            } else {
                console.log('Email sent: ' + info.response);
            }
        });
      }
       });
    }
  }
})
 });
```

This is the main function in app.js which will send the mail to the subscribed user in a given interval of time and will also send the only content in the domain which they were interested in and they have subscribed to.

Results

I have used prathammadhani@gmail.com gmail ID as newsletter service mail.Parth Sharma (prathammadhani28@gmail.com) subscribed to the sports as domain of interest, so our newsletter service has sent him the pre-defined sport news after every one minute (specific time interval).



prathammadhani@gmail.com
to me
4:57 AM (32 minutes ago)

from: prathammadhani@gmail.com
to: prathammadhani28@gmail.com
date: May 6, 2022, 4:57 AM
subject: NewsLetter Service by Pratham Madhani :) !
mailed-by: gmail.com
signed-by: gmail.com
security: Standard encryption (TLS) Learn more
: Important mainly because you often read messages with this label.

Sports … Thursday to move to No.5 in the IPL 2022 points table. David Warner starred with the bat for DC wi… owell hit a brutal 67 not out off 35 balls.

pratha…
to me
4:58 AM (31 minutes ago)

Sports … Thursday to move to No.5 in the IPL 2022 points table. David Warner starred with the bat for DC wi… owell hit a brutal 67 not out off 35 balls.

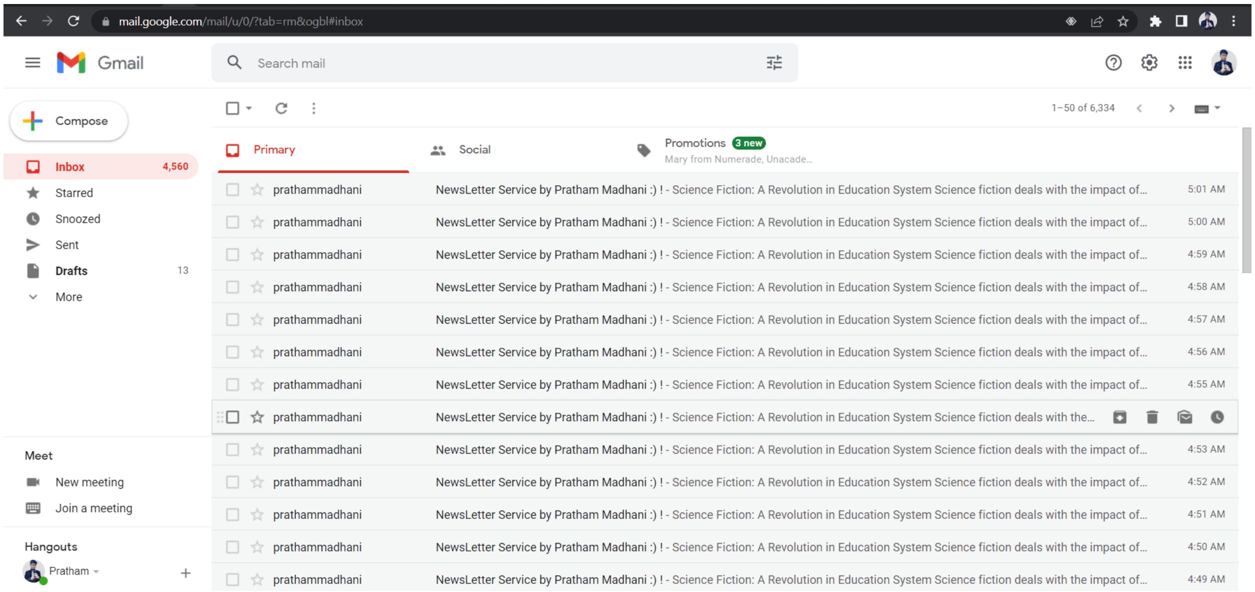
prathammadhani@gmail.com
to me
4:59 AM (30 minutes ago)

Sports news : Delhi Capitals defeated Sunrisers Hyderabad by 21 runs at the Brabourne Stadium on Thursday to move to No.5 in the IPL 2022 points table. David Warner starred with the bat for DC with an unbeaten 92 against his old team in what was billed as a grudge match, while Rovman Powell hit a brutal 67 not out off 35 balls.

prathammadhani@gmail.com
to me
5:00 AM (29 minutes ago)

Sports news : Delhi Capitals defeated Sunrisers Hyderabad by 21 runs at the Brabourne Stadium on Thursday to move to No.5 in the IPL 2022 points table. David Warner starred with the bat for DC with an unbeaten 92 against his old team in what was billed as a grudge match, while Rovman Powell hit a brutal 67 not out off 35 balls.

Pratham Madhani(prathamadhani28@gmail.com) subscribed to Science and Fiction as domain of interest, so our newsletter service has sent him the pre-defined information related to science and fiction after every one minute (specific time interval).



prathammadhani	NewsLetter Service by Pratham Madhani :) ! - Science Fiction: A Revolution in Education System Science fiction deals with the impact of...	5:01 AM
prathammadhani	NewsLetter Service by Pratham Madhani :) ! - Science Fiction: A Revolution in Education System Science fiction deals with the impact of...	5:00 AM
prathammadhani	NewsLetter Service by Pratham Madhani :) ! - Science Fiction: A Revolution in Education System Science fiction deals with the impact of...	4:59 AM
prathammadhani	NewsLetter Service by Pratham Madhani :) ! - Science Fiction: A Revolution in Education System Science fiction deals with the impact of...	4:58 AM
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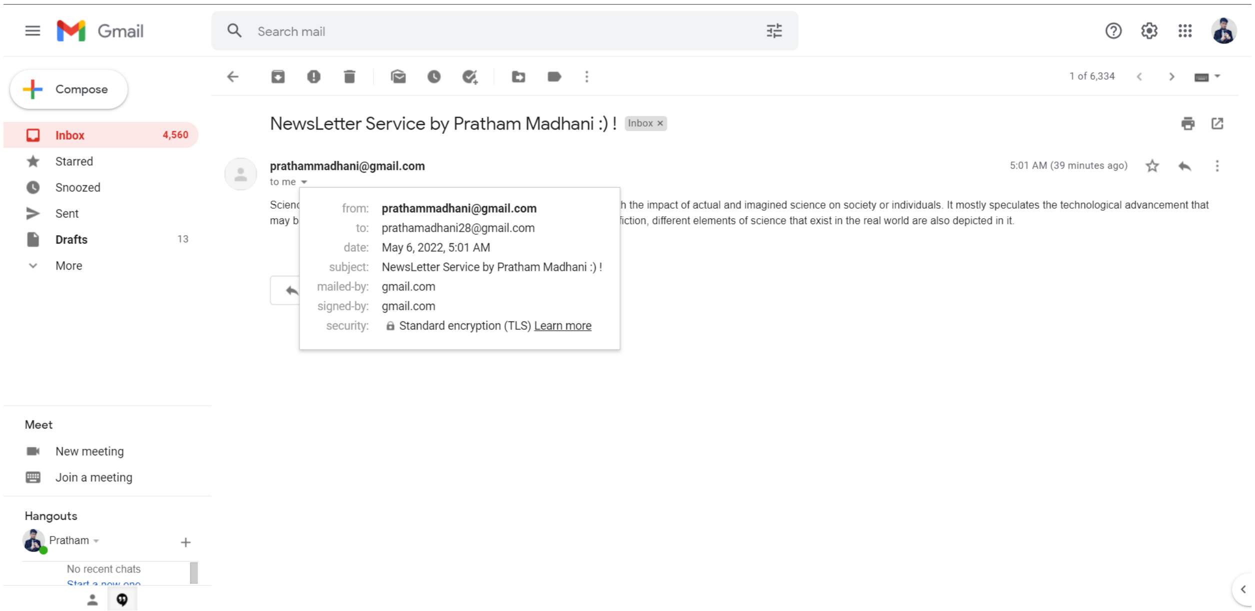
prathammadhani	NewsLetter Service by Pratham Madhani :) ! - Science Fiction: A Revolution in Education System Science fiction deals with the impact of...	4:49 AM



NewsLetter Service by Pratham Madhani :) !

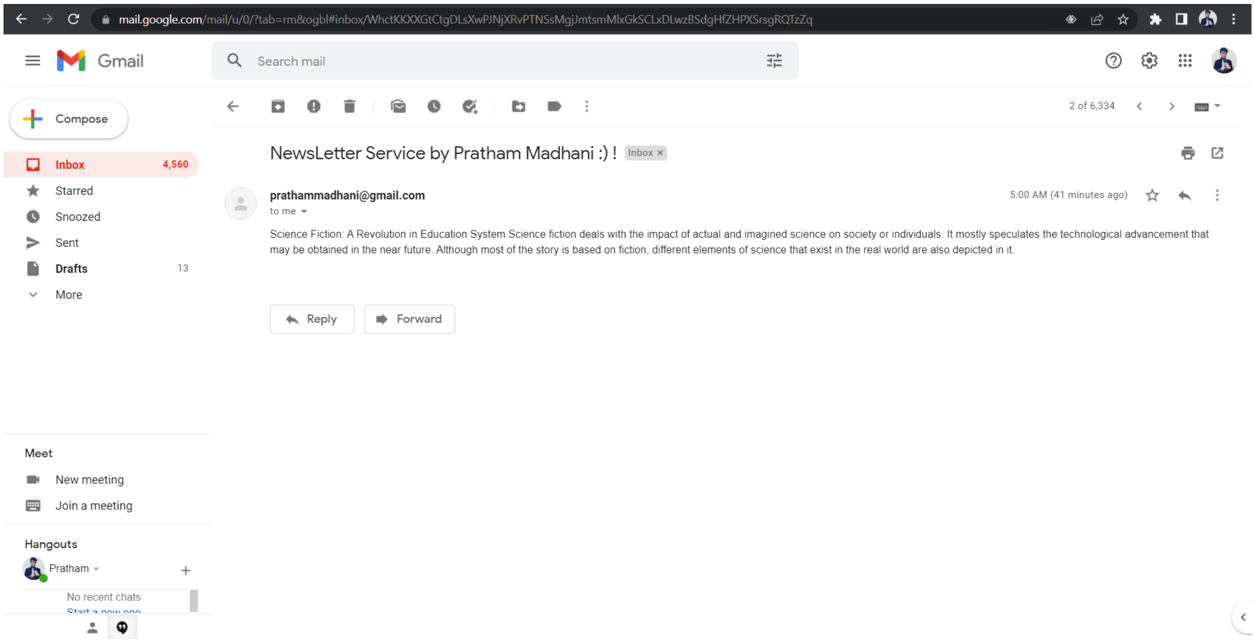
prathammadhani@gmail.com

to me

5:01 AM (39 minutes ago)

from: prathammadhani@gmail.com
to: prathamadhani28@gmail.com
date: May 6, 2022, 5:01 AM
subject: NewsLetter Service by Pratham Madhani :) !
mailed-by: gmail.com
signed-by: gmail.com
security: Standard encryption (TLS) Learn more

Scienc… h the impact of actual and imagined science on society or individuals. It mostly speculates the technological advancement that may b… fiction, different elements of science that exist in the real world are also depicted in it.



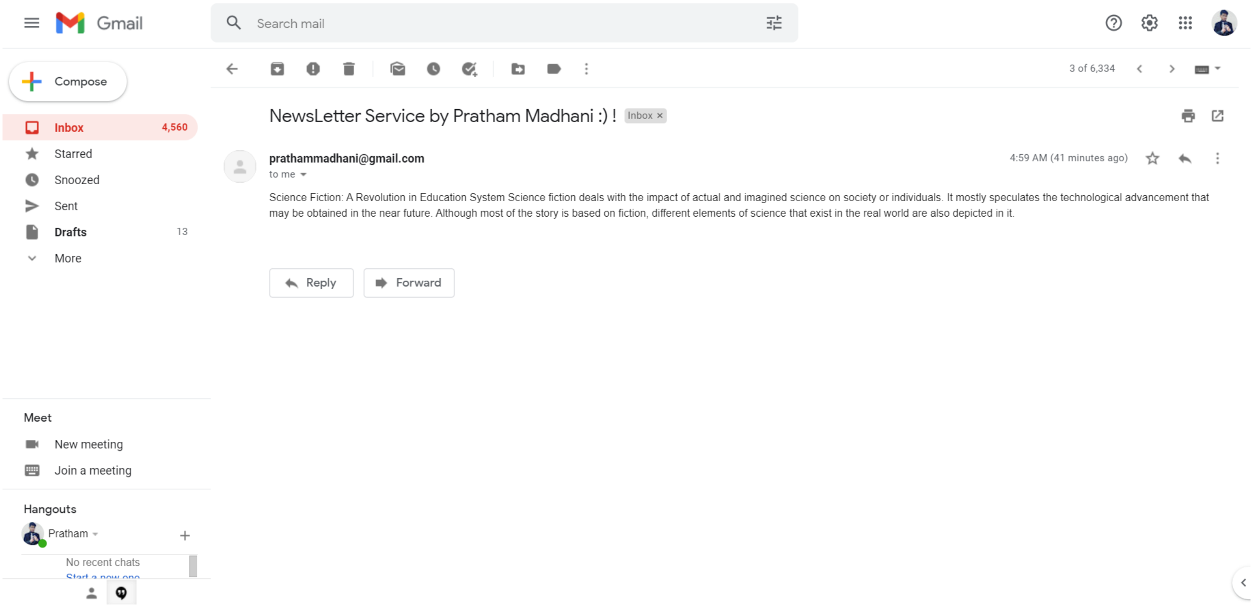
NewsLetter Service by Pratham Madhani :) !

prathammadhani@gmail.com

to me

5:00 AM (41 minutes ago)

Science Fiction: A Revolution in Education System Science fiction deals with the impact of actual and imagined science on society or individuals. It mostly speculates the technological advancement that may be obtained in the near future. Although most of the story is based on fiction, different elements of science that exist in the real world are also depicted in it.



NewsLetter Service by Pratham Madhani :) ! Inbox ×

prathammadhani@gmail.com
to me

4:59 AM (41 minutes ago)

Science Fiction: A Revolution in Education System Science fiction deals with the impact of actual and imagined science on society or individuals. It mostly speculates the technological advancement that may be obtained in the near future. Although most of the story is based on fiction, different elements of science that exist in the real world are also depicted in it.

References

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- https://www.w3schools.com/nodejs/nodejs_email.asp