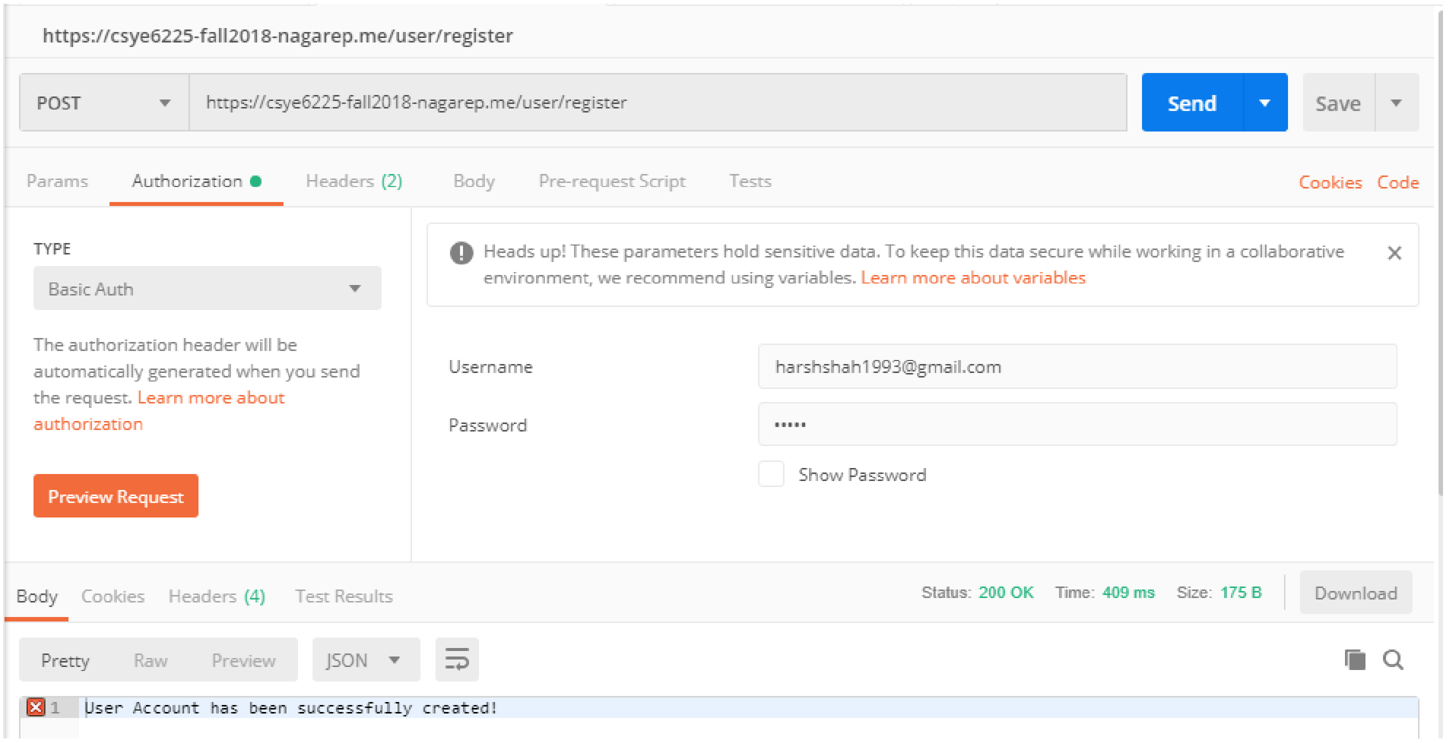
Accessing Webapplication using domain name:

Ex: https://csye6225-fall2018-nagarep.me/user/register



https://csye6225-fall2018-nagarep.me/user/register

POST https://csye6225-fall2018-nagarep.me/user/register

TYPE: Basic Auth

The authorization header will be automatically generated when you send the request. Learn more about authorization

Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment, we recommend using variables. Learn more about variables

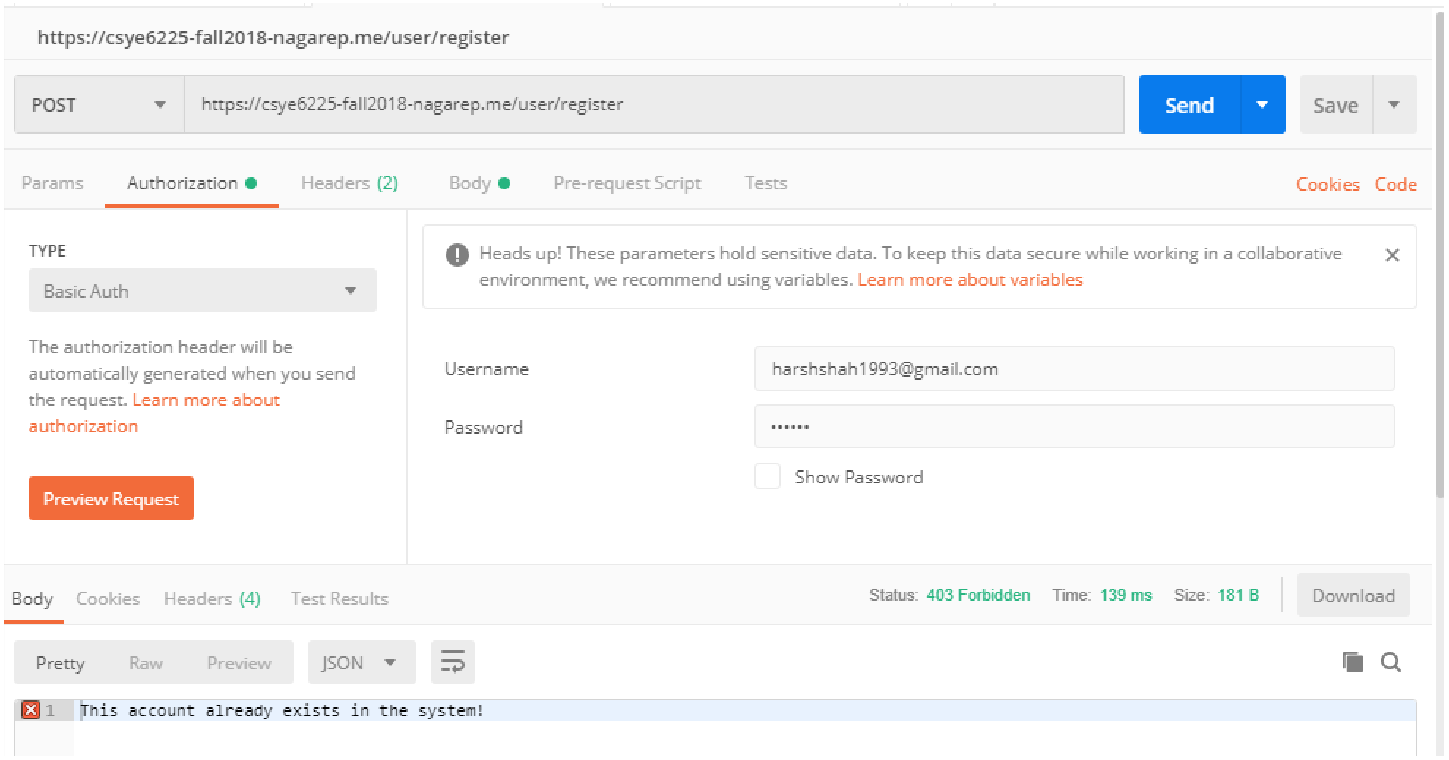
Username: harshshah1993@gmail.com

Password: •••••

Status: 200 OK Time: 409 ms Size: 175 B

```
User Account has been successfully created!
```

Trying to register the same user again:



https://csye6225-fall2018-nagarep.me/user/register

POST https://csye6225-fall2018-nagarep.me/user/register

TYPE: Basic Auth

The authorization header will be automatically generated when you send the request. Learn more about authorization

Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment, we recommend using variables. Learn more about variables

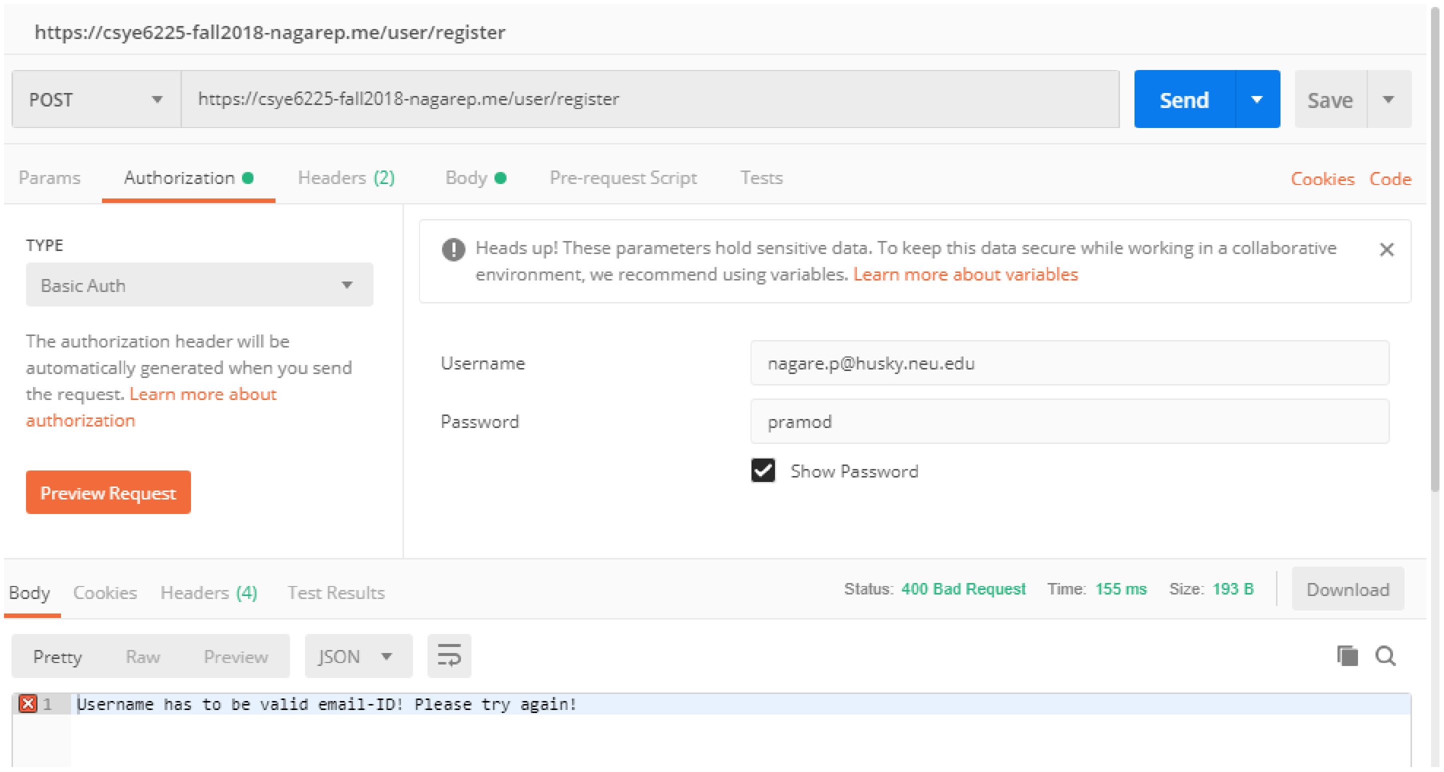
Username: harshshah1993@gmail.com

Password: ••••••

Status: 403 Forbidden Time: 139 ms Size: 181 B

```
This account already exists in the system!
```

Trying to create user with .neu.edu domain ID.



https://csye6225-fall2018-nagarep.me/user/register

POST https://csye6225-fall2018-nagarep.me/user/register

Params | Authorization | Headers (2) | Body | Pre-request Script | Tests

TYPE: Basic Auth

The authorization header will be automatically generated when you send the request. Learn more about authorization

Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment, we recommend using variables. Learn more about variables

Username: nagare.p@husky.neu.edu

Password: pramod

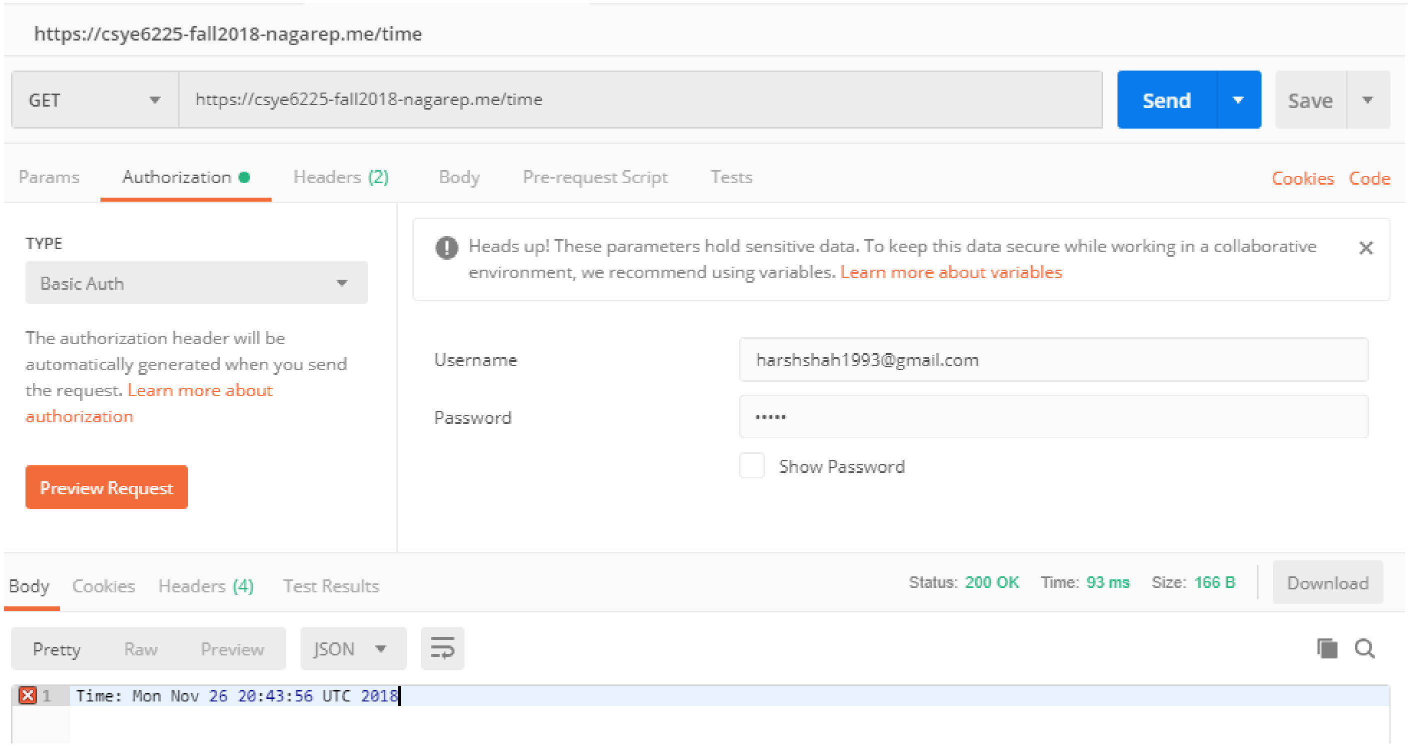
[✓] Show Password

Status: 400 Bad Request Time: 155 ms Size: 193 B

```
Username has to be valid email-ID! Please try again!
```

Getting current time:

https://csye6225-fall2018-nagarep.me/time



https://csye6225-fall2018-nagarep.me/time

GET https://csye6225-fall2018-nagarep.me/time

Params | Authorization | Headers (2) | Body | Pre-request Script | Tests

TYPE: Basic Auth

The authorization header will be automatically generated when you send the request. Learn more about authorization

Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment, we recommend using variables. Learn more about variables

Username: harshshah1993@gmail.com

Password: •••••

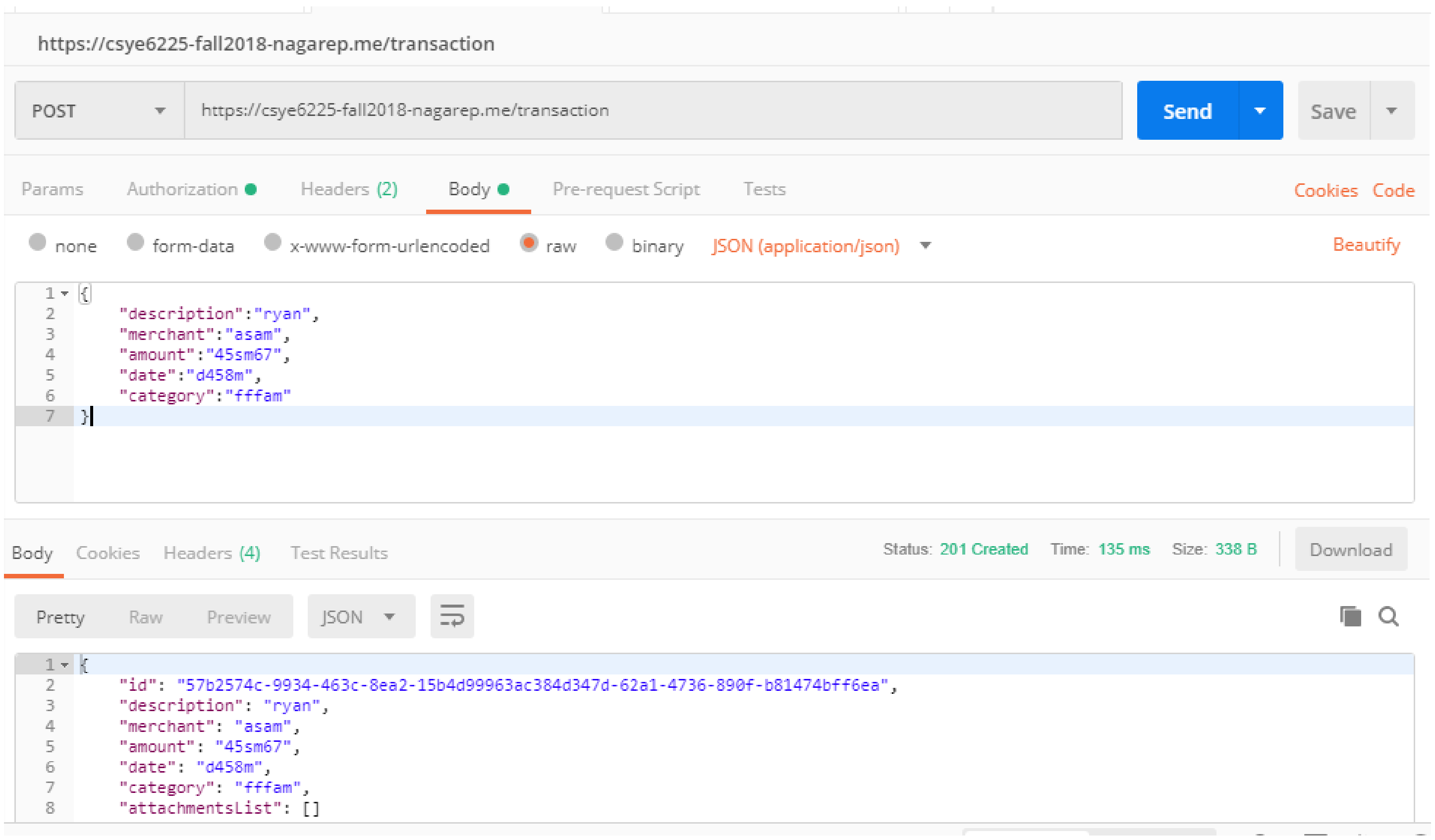
[ ] Show Password

Status: 200 OK Time: 93 ms Size: 166 B

```
Time: Mon Nov 26 20:43:56 UTC 2018
```

Creating Transaction:

https://csye6225-fall2018-nagarep.me/transaction



https://csye6225-fall2018-nagarep.me/transaction

POST https://csye6225-fall2018-nagarep.me/transaction

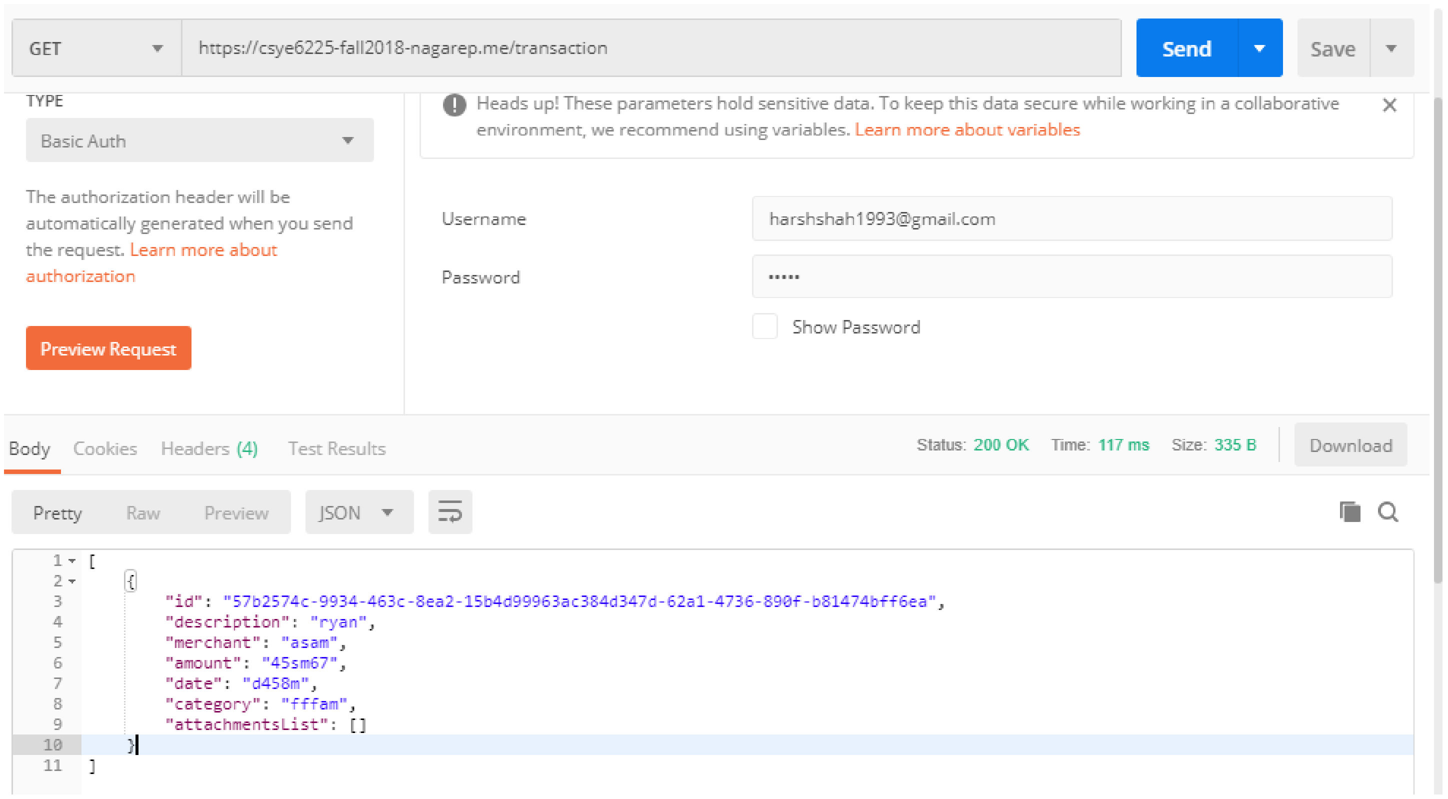
Body: raw, JSON (application/json)

```
{
    "description":"ryan",
    "merchant":"asam",
    "amount":"45sm67",
    "date":"d458m",
    "category":"fffam"
}
```

Status: 201 Created Time: 135 ms Size: 338 B

```
{
    "id": "57b2574c-9934-463c-8ea2-15b4d99963ac384d347d-62a1-4736-890f-b81474bff6ea",
    "description": "ryan",
    "merchant": "asam",
    "amount": "45sm67",
    "date": "d458m",
    "category": "fffam",
    "attachmentsList": []
```

Getting all transactions:



GET https://csye6225-fall2018-nagarep.me/transaction

TYPE: Basic Auth

The authorization header will be automatically generated when you send the request. Learn more about authorization

Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment, we recommend using variables. Learn more about variables

Username: harshshah1993@gmail.com

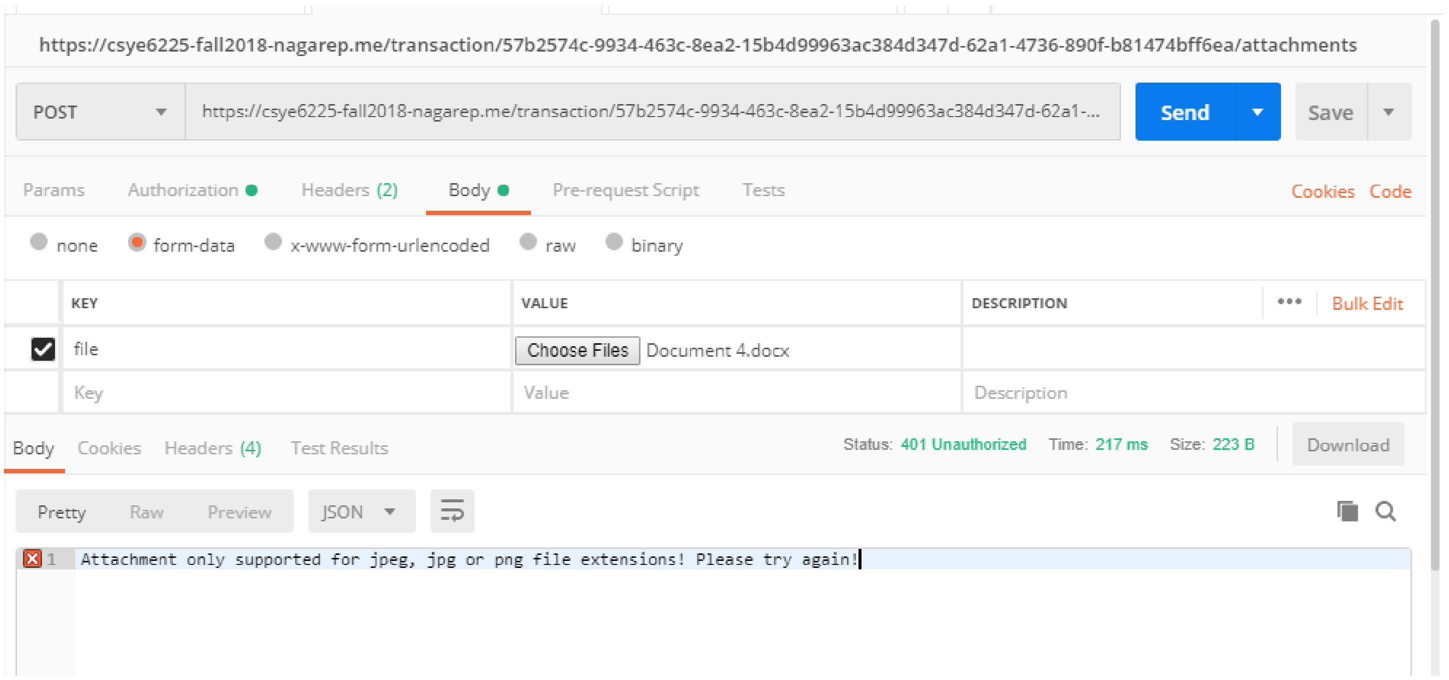
Password: •••••

Status: 200 OK Time: 117 ms Size: 335 B

```
[
    {
        "id": "57b2574c-9934-463c-8ea2-15b4d99963ac384d347d-62a1-4736-890f-b81474bff6ea",
        "description": "ryan",
        "merchant": "asam",
        "amount": "45sm67",
        "date": "d458m",
        "category": "fffam",
        "attachmentsList": []
    }
]
```

Attachment for the transaction:

1. Other than png or jpeg files:



https://csye6225-fall2018-nagarep.me/transaction/57b2574c-9934-463c-8ea2-15b4d99963ac384d347d-62a1-4736-890f-b81474bff6ea/attachments

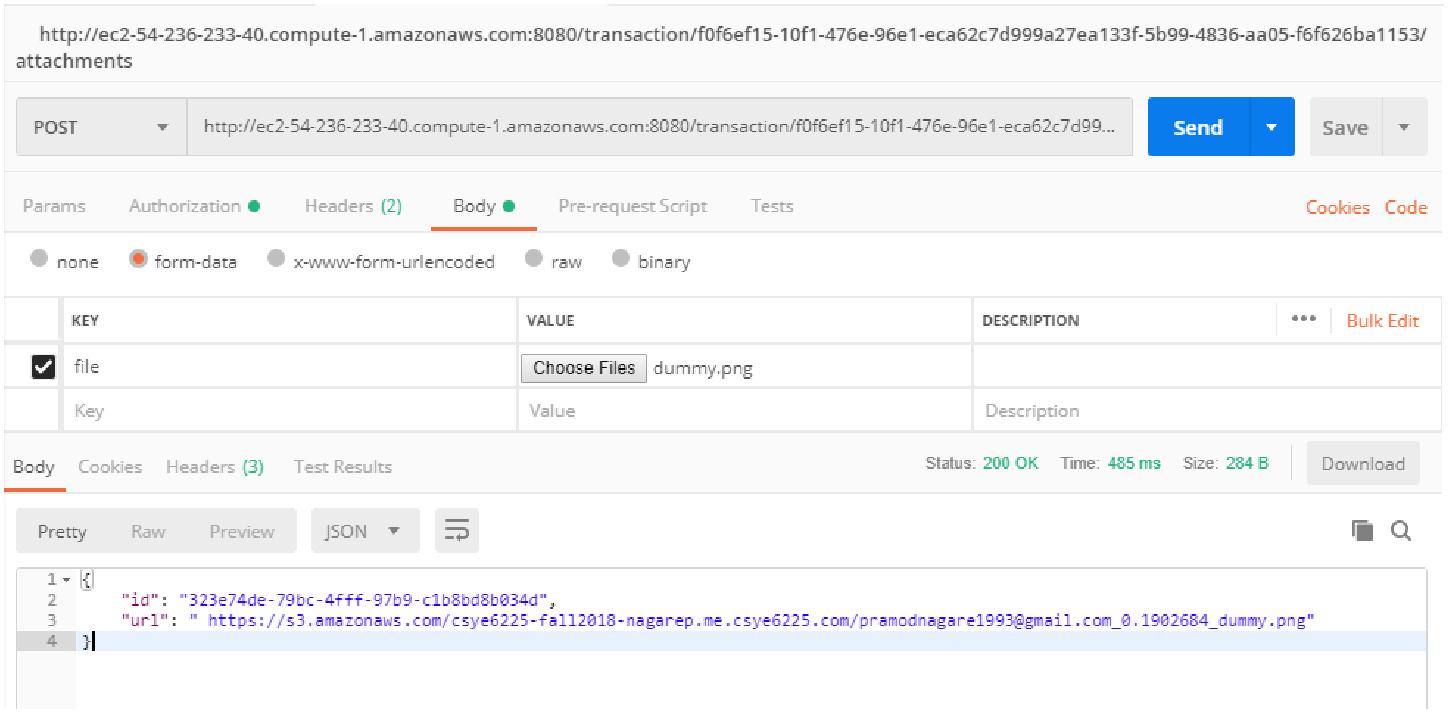
POST https://csye6225-fall2018-nagarep.me/transaction/57b2574c-9934-463c-8ea2-15b4d99963ac384d347d-62a1-...

KEY	VALUE	DESCRIPTION
file	Choose Files Document 4.docx	

Status: 401 Unauthorized Time: 217 ms Size: 223 B

```
Attachment only supported for jpeg, jpg or png file extensions! Please try again!
```

2. With the supported file formats.



http://ec2-54-236-233-40.compute-1.amazonaws.com:8080/transaction/f0f6ef15-10f1-476e-96e1-eca62c7d999a27ea133f-5b99-4836-aa05-f6f626ba1153/attachments

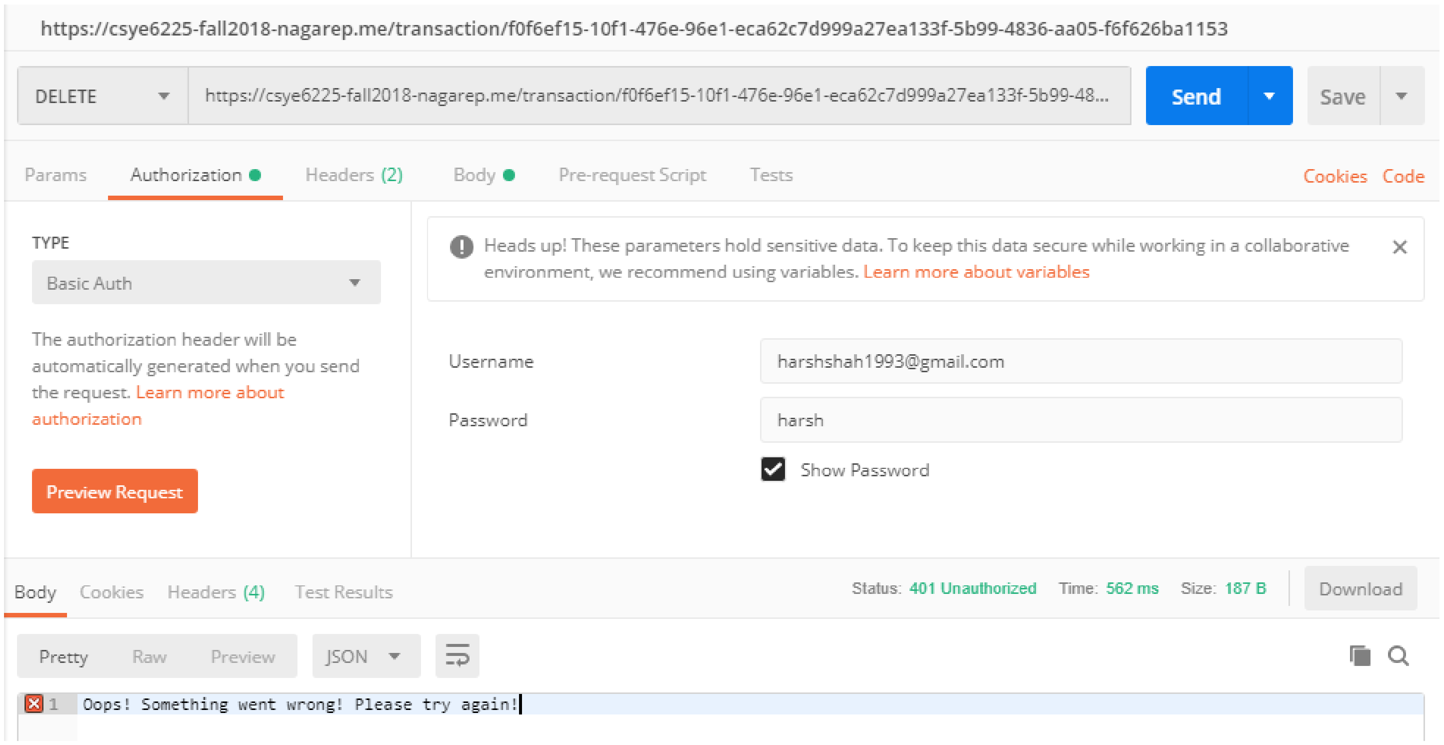
POST http://ec2-54-236-233-40.compute-1.amazonaws.com:8080/transaction/f0f6ef15-10f1-476e-96e1-eca62c7d99...

KEY	VALUE	DESCRIPTION
file	Choose Files dummy.png	

Status: 200 OK Time: 485 ms Size: 284 B

```
{
    "id": "323e74de-79bc-4fff-97b9-c1b8bd8b034d",
    "url": " https://s3.amazonaws.com/csye6225-fall2018-nagarep.me.csye6225.com/pramodnagare1993@gmail.com_0.1902684_dummy.png"
}
```

3. Cross user interface:
   User harshshah1993@gmail.com trying to delete transaction for user pramodnagare1993@gmail.com


https://csye6225-fall2018-nagarep.me/transaction/f0f6ef15-10f1-476e-96e1-eca62c7d999a27ea133f-5b99-4836-aa05-f6f626ba1153

DELETE https://csye6225-fall2018-nagarep.me/transaction/f0f6ef15-10f1-476e-96e1-eca62c7d999a27ea133f-5b99-48...

TYPE: Basic Auth

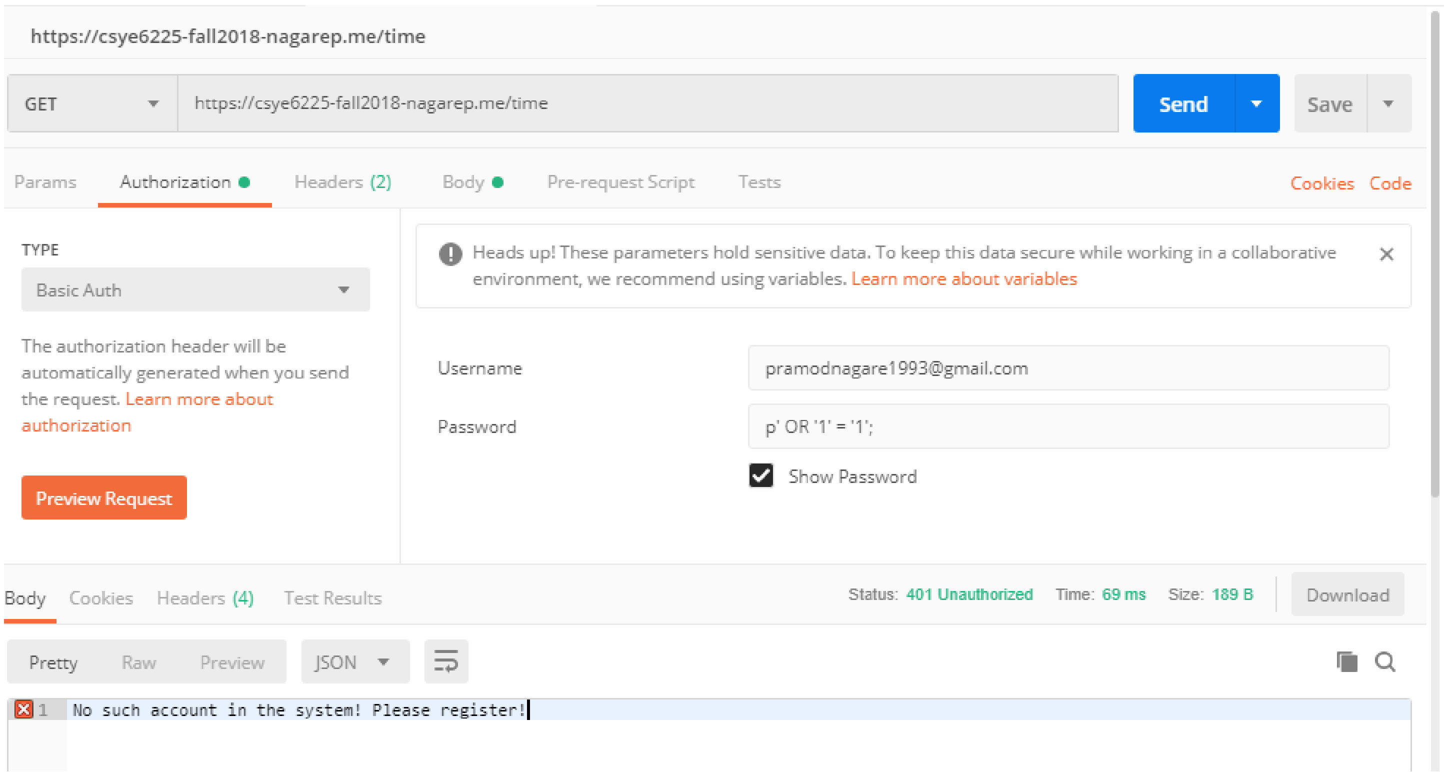
Username: harshshah1993@gmail.com

Password: harsh

Status: 401 Unauthorized Time: 562 ms Size: 187 B

```
Oops! Something went wrong! Please try again!
```

4. SQL Injection:


https://csye6225-fall2018-nagarep.me/time

GET https://csye6225-fall2018-nagarep.me/time

TYPE: Basic Auth

Username: pramodnagare1993@gmail.com

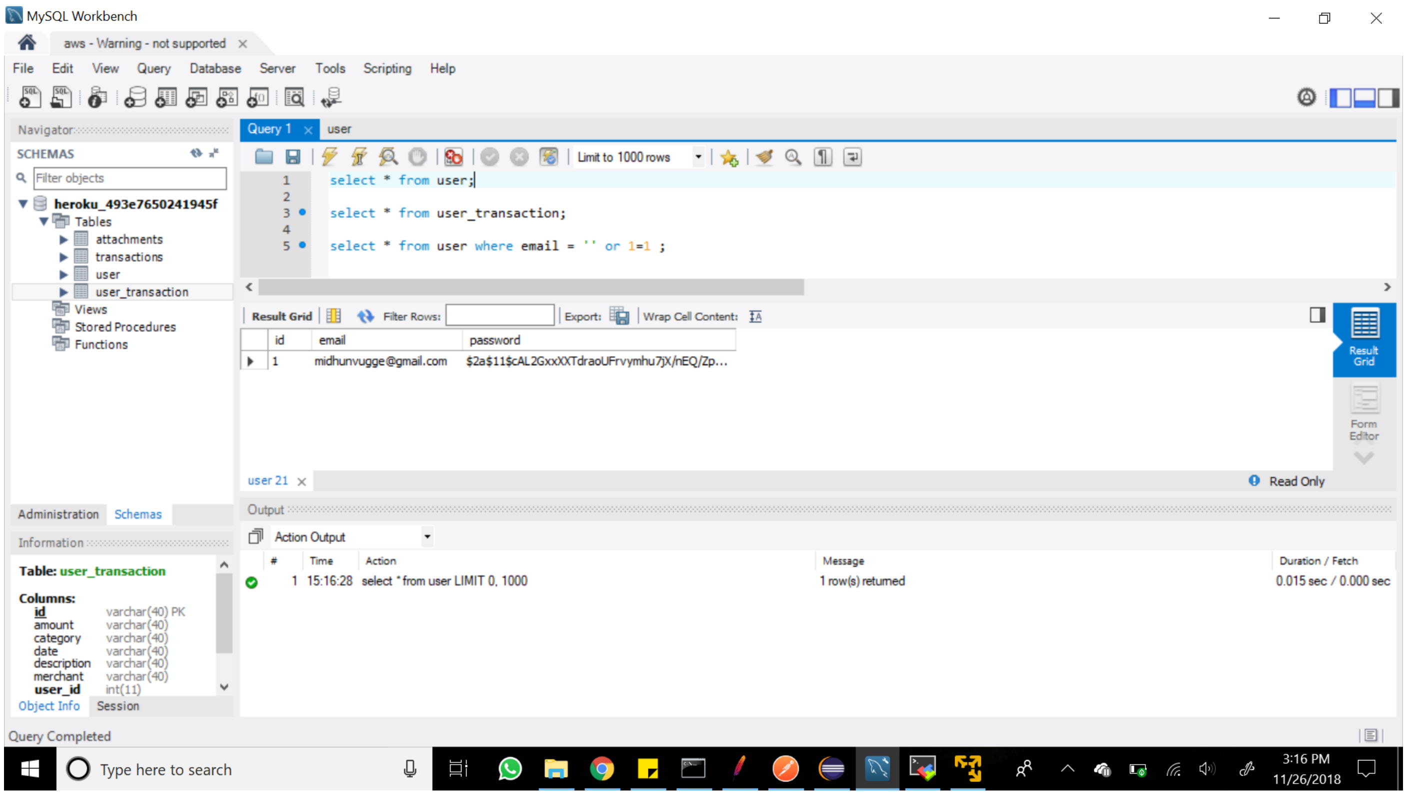
Password: p' OR '1' = '1';

Status: 401 Unauthorized Time: 69 ms Size: 189 B

```
No such account in the system! Please register!
```

Attack Vector: SQL Injection

It is a code injection technique for data driven applications in which we test the username and password authentication while in place of username or password when given 1=1(which is always true) the code which is vulnerable to attacks displays the result as when authenticated username and password is passed.



```
select * from user;

select * from user_transaction;

select * from user where email = '' or 1=1 ;
```

	id	email	password
▶	1	midhunvugge@gmail.com	$2a$11$cAL2GxxXXTdraoUFrvymhu7jX/nEQ/Zp...

Table: user_transaction

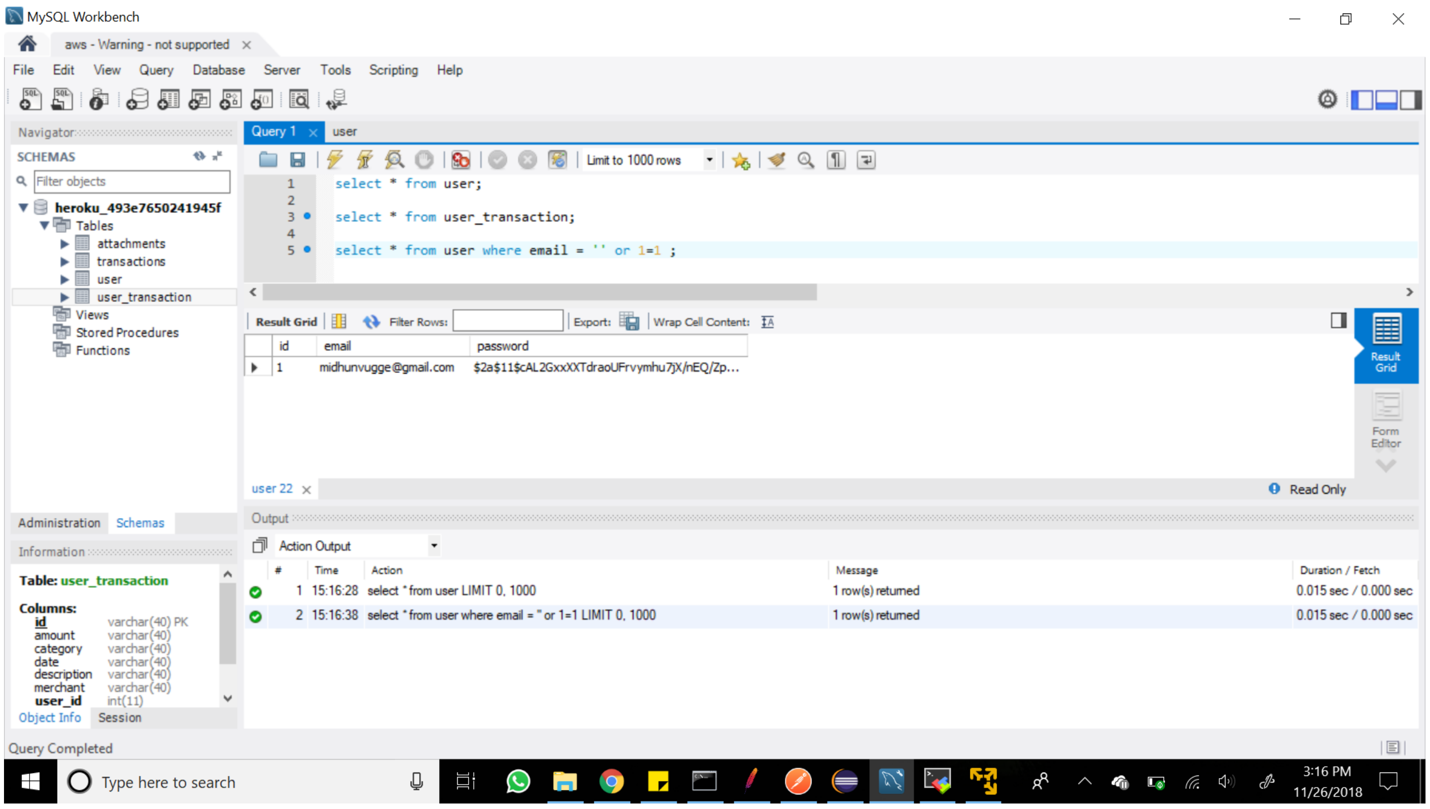
Columns:

id	varchar(40) PK
amount	varchar(40)
category	varchar(40)
date	varchar(40)
description	varchar(40)
merchant	varchar(40)
user_id	int(11)

#	Time	Action	Message	Duration / Fetch
1	15:16:28	select * from user LIMIT 0, 1000	1 row(s) returned	0.015 sec / 0.000 sec

Query Completed

Test with ‘OR 1=1’ field:



```
select * from user;

select * from user_transaction;

select * from user where email = '' or 1=1 ;
```

id	email	password
1	midhunvugge@gmail.com	$2a$11$cAL2GxxXXTdraoUFrvymhu7jX/nEQ/Zp...

#	Time	Action	Message	Duration / Fetch
1	15:16:28	select * from user LIMIT 0, 1000	1 row(s) returned	0.015 sec / 0.000 sec
2	15:16:38	select * from user where email = '' or 1=1 LIMIT 0, 1000	1 row(s) returned	0.015 sec / 0.000 sec

Table: user_transaction

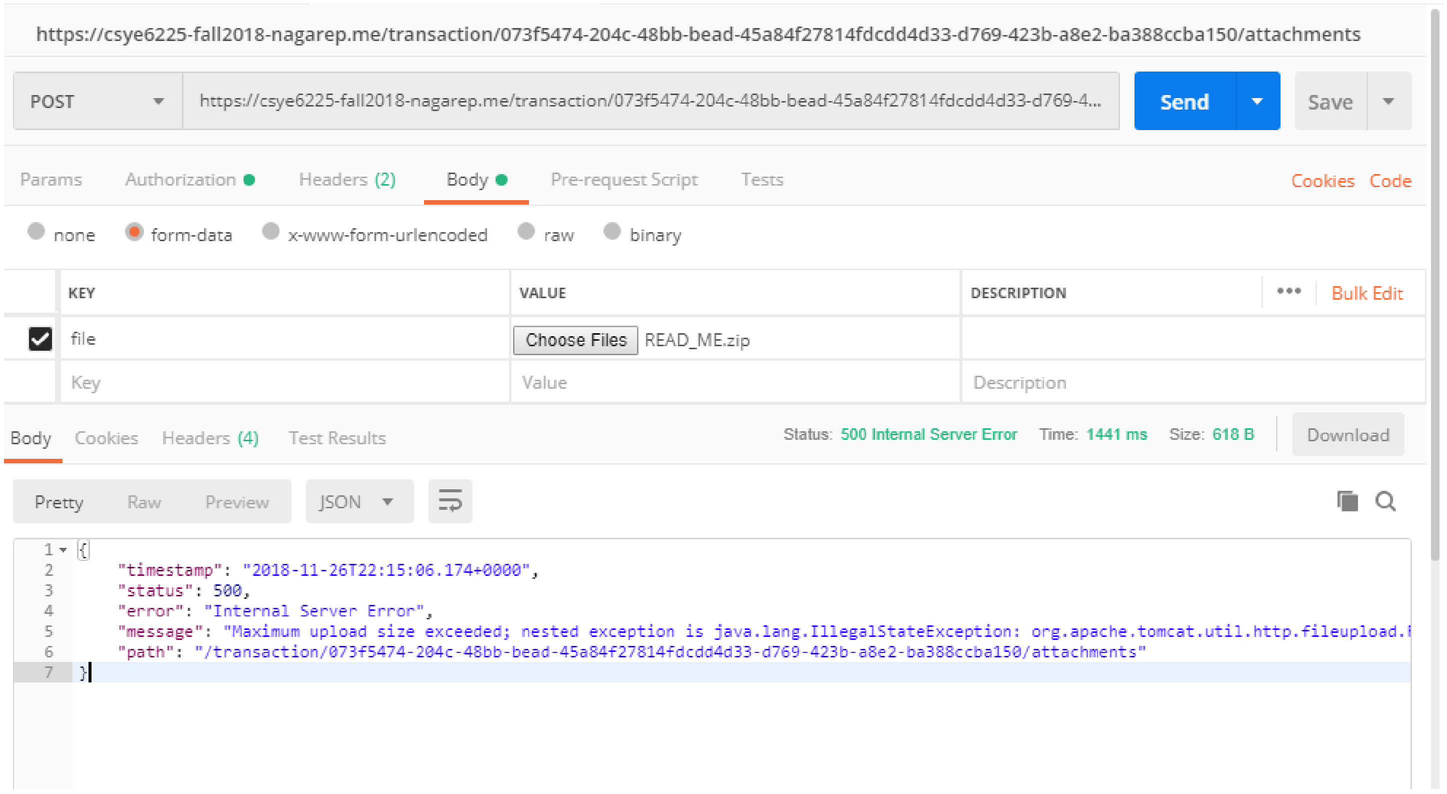
Columns:

id	varchar(40) PK
amount	varchar(40)
category	varchar(40)
date	varchar(40)
description	varchar(40)
merchant	varchar(40)
user_id	int(11)

SQL Injection helps test the vulnerability of the code. Attackers can access the data base even without knowledge of our entries. Since our web application has excessive usage of sql data base with user and user_transaction tables, it is logical and useful to test the code for SQL Injection.

5. Attachment size:

Attachment is failing, because the max limit is 1048576 Bytes or 1MB.



https://csye6225-fall2018-nagarep.me/transaction/073f5474-204c-48bb-bead-45a84f27814fdcdd4d33-d769-423b-a8e2-ba388ccba150/attachments

POST https://csye6225-fall2018-nagarep.me/transaction/073f5474-204c-48bb-bead-45a84f27814fdcdd4d33-d769-4...

Body: form-data

KEY	VALUE	DESCRIPTION
✓ file	READ_ME.zip	

Status: 500 Internal Server Error Time: 1441 ms Size: 618 B

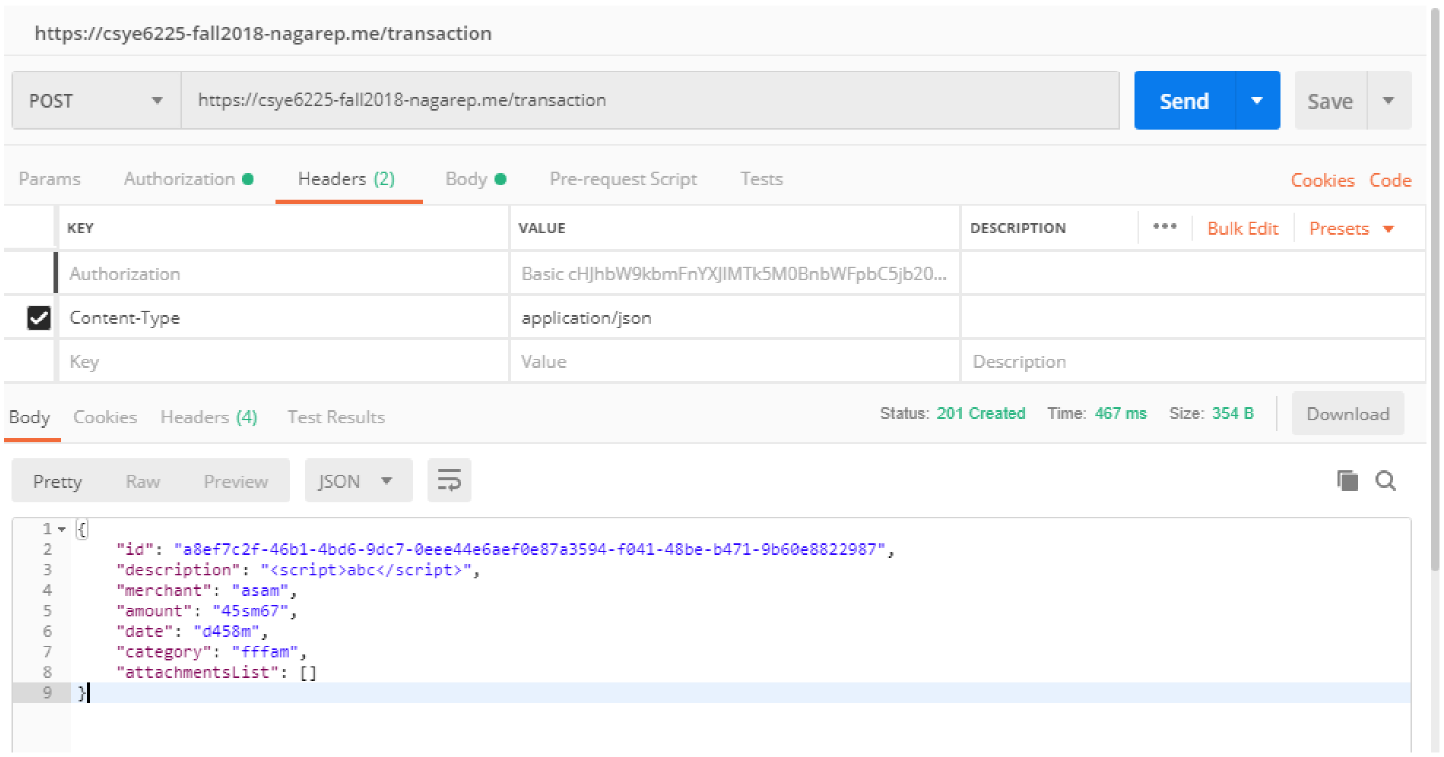
```
{
    "timestamp": "2018-11-26T22:15:06.174+0000",
    "status": 500,
    "error": "Internal Server Error",
    "message": "Maximum upload size exceeded; nested exception is java.lang.IllegalStateException: org.apache.tomcat.util.http.fileupload.
    "path": "/transaction/073f5474-204c-48bb-bead-45a84f27814fdcdd4d33-d769-423b-a8e2-ba388ccba150/attachments"
}
```

Attack Vector: Attachment maximum size

Attachment maximum size vulnerability test is done to verify set restrictions on the files being uploaded to our S3 bucket. In this test we pass heavy files and in a well written code, these files should not be posted as it induces considerable latency on our instance.

We are testing 'attachment post' in our code. An attacker can pass a large file to the S3 bucket deliberately and can induce considerable delays to our instance and can also crash the instance as well. To prevent this, we can restrict the maximum size of the files being posted into our S3 bucket.

XSS Penetration: Cross site scripting:



POST https://csye6225-fall2018-nagarep.me/transaction

KEY	VALUE	DESCRIPTION
Authorization	Basic cHJhbW9kbmFnYXJlMTk5M0BnbWFpbC5jb20...	
✓ Content-Type	application/json	
Key	Value	Description

Status: 201 Created Time: 467 ms Size: 354 B

```
{
    "id": "a8ef7c2f-46b1-4bd6-9dc7-0eee44e6aef0e87a3594-f041-48be-b471-9b60e8822987",
    "description": "<script>abc</script>",
    "merchant": "asam",
    "amount": "45sm67",
    "date": "d458m",
    "category": "fffam",
    "attachmentsList": []
}
```