

# Chatbot report

Made by:  
Eugen-Mihai FLOCEA,  
Jonathan SAND

Link for our GitHub repository: [https://github.com/Jonathan2021/chatbot\\_recommendation](https://github.com/Jonathan2021/chatbot_recommendation)

The idea of our project was to build a chatbot that is able to recommend books to its users that are readers. In order to do so, we searched for a book dataset to build our recommendation system. The dataset contains information about thousands of books like rating, title, authors, gender etc.

| A              | B         | C         | D               | E                   | F           | G                       | H         | I                  | J                          | K             | L             | M       | N           | O            | P          | Q       | R                  | S       | T        | U | V | W |
|----------------|-----------|-----------|-----------------|---------------------|-------------|-------------------------|-----------|--------------------|----------------------------|---------------|---------------|---------|-------------|--------------|------------|---------|--------------------|---------|----------|---|---|---|
| average_rating | ratings_1 | ratings_5 | authors         | work_text_title     | books_count | original_publication_id | ratings_3 | image_url          | work_rating_series         | language_code | volume_number | Romance | Young Adult | Contemporary | Children's | Fantasy | Historical Fiction | Mystery | Classics |   |   |   |
| 4.34           | 66715     | 2708317   | Suzanne Collins | 155254 The Hunger   | 272         | 2008                    | 1         | 560092 https://img | 4942363 The Hunger (eng    | 1             | 1             | 1       | 1           | 0            | 1          | 0       | 0                  | 0       | 0        | 0 | 0 | 0 |
| 4.44           | 75504     | 3011543   | J.K. Rowling,   | 75867 Harry Potter  | 491         | 1997                    | 2         | 455024 https://img | 4800065 Harry Potter (eng  | 1             | 0             | 1       | 1           | 1            | 1          | 1       | 0                  | 1       | 1        | 1 | 1 | 1 |
| 3.57           | 456191    | 1355439   | Stephenie M     | 95009 Twilight      | 226         | 2005                    | 3         | 793319 https://img | 3916824 Twilight (en-US    | 1             | 0             | 1       | 1           | 1            | 0          | 1       | 0                  | 0       | 0        | 0 | 0 | 0 |
| 4.25           | 60427     | 1714267   | Harper Lee      | 72586 To Kill a Moc | 487         | 1960                    | 4         | 446835 https://img | 3340896                    | eng           | 1             | 0       | 1           | 1            | 1          | 0       | 0                  | 1       | 1        | 1 | 1 | 1 |
| 3.89           | 86236     | 947718    | F. Scott Fitzg  | 51992 The Great G   | 1356        | 1925                    | 5         | 606158 https://img | 2773745                    | eng           | 1             | 1       | 1           | 1            | 0          | 0       | 0                  | 1       | 0        | 0 | 1 | 0 |
| 4.26           | 47994     | 1311871   | John Green      | 140739 The Fault in | 226         | 2012                    | 6         | 327550 https://img | 2478609                    | eng           | 1             | 1       | 1           | 1            | 0          | 0       | 0                  | 0       | 0        | 0 | 0 | 0 |
| 4.25           | 46023     | 1119718   | J.R.R. Tolkien  | 37653 The Hobbit    | 969         | 1937                    | 7         | 288649 https://img | 2196809                    | en-US         | 1             | 0       | 1           | 1            | 0          | 1       | 1                  | 0       | 0        | 1 | 1 | 1 |
| 3.79           | 109383    | 709176    | J.D. Salinger   | 44920 The Catcher   | 360         | 1951                    | 8         | 455042 https://img | 2120637                    | eng           | 1             | 0       | 1           | 1            | 1          | 0       | 0                  | 1       | 0        | 0 | 0 | 1 |
| 3.85           | 77841     | 680175    | Dan Brown       | 25112 Angels & Dei  | 311         | 2000                    | 9         | 458429 https://img | 2078754 Robert Lang-en-CA  | 1             | 1             | 0       | 1           | 1            | 0          | 1       | 1                  | 1       | 1        | 1 | 1 | 1 |
| 4.24           | 54700     | 1155679   | Jane Austen     | 49152 Pride and Pri | 3455        | 1813                    | 10        | 284852 https://img | 2191465                    | eng           | 1             | 1       | 1           | 0            | 0          | 0       | 1                  | 0       | 0        | 1 | 0 | 1 |
| 4.26           | 34288     | 929591    | Khaled Hosse    | 59730 The Kite Run  | 283         | 2003                    | 11        | 226062 https://img | 1878095                    | eng           | 1             | 0       | 1           | 1            | 1          | 0       | 0                  | 1       | 0        | 1 | 0 | 1 |
| 4.24           | 36315     | 1114304   | Veronica Rot    | 101023 Divergent    | 210         | 2011                    | 12        | 310297 https://img | 2216814 Divergent          | eng           | 1             | 1       | 1           | 1            | 0          | 0       | 1                  | 0       | 0        | 0 | 0 | 0 |
| 4.14           | 41845     | 908229    | George Orw      | 45518 1984          | 995         | 1949                    | 13        | 324874 https://img | 2053394                    | eng           | 1             | 0       | 1           | 0            | 0          | 0       | 1                  | 0       | 0        | 0 | 0 | 0 |
| 3.87           | 66854     | 648912    | George Orw      | 35472 Animal Farm   | 896         | 1945                    | 14        | 433432 https://img | 1982987                    | eng           | 1             | 0       | 1           | 0            | 0          | 0       | 1                  | 1       | 0        | 0 | 1 | 1 |
| 4.1            | 45225     | 875372    | Anne Frank,     | 20825 The Diary of  | 710         | 1947                    | 15        | 355756 https://img | 2024493                    | eng           | 1             | 0       | 1           | 0            | 1          | 0       | 0                  | 1       | 0        | 0 | 1 | 1 |
| 4.11           | 54835     | 836050    | Stieg Larsson   | 42543 The Girl with | 274         | 2005                    | 16        | 265413 https://img | 1929834 Millennium         | eng           | 1             | 0       | 0           | 1            | 0          | 0       | 0                  | 1       | 0        | 0 | 0 | 0 |
| 4.3            | 10492     | 980309    | Suzanne Coll    | 88538 Catching Fire | 201         | 2009                    | 17        | 262010 https://img | 1988079 The Hunger (eng    | 2             | 1             | 1       | 1           | 1            | 0          | 1       | 0                  | 0       | 0        | 0 | 0 | 0 |
| 4.53           | 6716      | 1266670   | J.K. Rowling,   | 36099 Harry Potter  | 376         | 1999                    | 18        | 166129 https://img | 1969375 Harry Potter (eng  | 3             | 0             | 1       | 1           | 1            | 1          | 1       | 0                  | 1       | 1        | 1 | 1 | 1 |
| 4.34           | 38031     | 1042394   | J.R.R. Tolkien  | 15333 The Fellowshi | 566         | 1954                    | 19        | 202332 https://img | 1832541 The Lord of t (eng | 1             | 0             | 1       | 0           | 0            | 0          | 1       | 0                  | 0       | 0        | 1 | 1 | 1 |
| 4.03           | 30144     | 738775    | Suzanne Coll    | 96274 Mockingjay    | 239         | 2010                    | 20        | 373060 https://img | 1870748 The Hunger (eng    | 3             | 1             | 1       | 0           | 0            | 0          | 1       | 0                  | 0       | 0        | 0 | 0 | 0 |
| 4.46           | 9528      | 1124806   | J.K. Rowling,   | 28885 Harry Potter  | 907         | 2003                    | 21        | 180210 https://img | 1840548 Harry Potter (eng  | 5             | 1             | 1       | 1           | 0            | 1          | 1       | 0                  | 1       | 1        | 0 | 1 | 0 |

Before starting the work, we splitted the work. Jonathan SAND is responsible for building the recommendation system and Eugen for coding the chatbot.

We choose to do the chatbot in JavaScript and the recommendation system in python. The server that we choose to operate the chatbot is Facebook Messenger.

In order to make the connection with Facebook Messenger we created an application on Facebook for developers website and a class in JavaScript designed to deal with the connection between Messenger and chatbot. We had to make the connection between the server and Messenger by the app's access token and by a verify token that can be chosen by us:

```
{
  "FB": {
    "pageAccessToken": "EAACbYZCabz18BANm4GDOA7x4QVZAchBbqgmXxrvvgRaqLpE",
    "verifyToken": "whatever I want",
    "appSecret": "8ee3cce20339ef5d2b1b3e075512057f"
  }
}
```

The pageAccessToken is provided from the Facebook page, the same for the appSecret:

Generate a Page access token to start using the platform APIs. You will be able to generate an access token for a Page if:

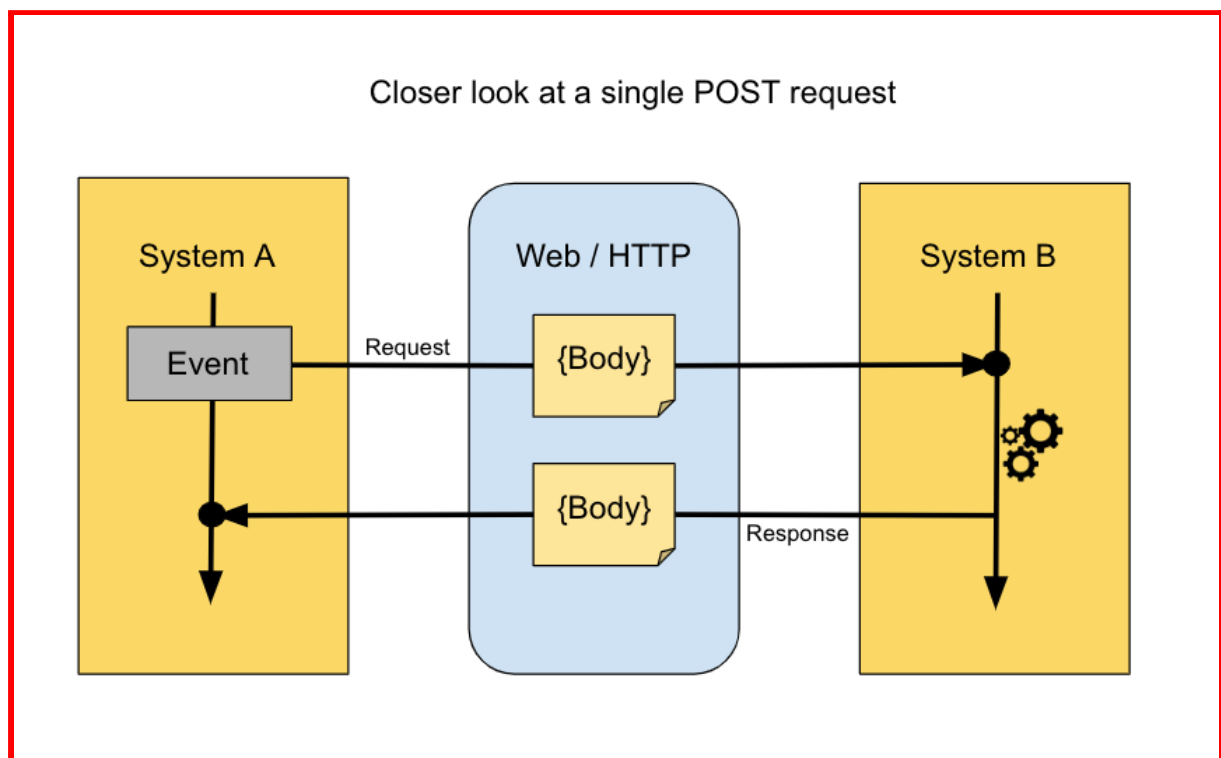
1. You are one of the Page admins, and
2. The app has been granted the Page's permission to manage and access Page conversations in Messenger.

Note: If your app is in dev mode, you can still generate a token but will only be able to access people who manage the app or Page.

| Pages ↑  | Tokens                           |
|--|----------------------------------|
| <div><div>F</div><div>First Page<br/>104991404996706</div></div> | — <a href="#">Generate Token</a> |

[Add or Remove Pages](#) ⓘ

In order to connect the Messenger app with the chatbot app we used a webhook which works like this:



Here System A is represented by the Messenger who takes care of the Events which are the users messages and System B by our JavaScript application that computes the responses. {Body} represents the messages that have been exchanged.

To use the webhooks we use ngrok. After typing the command ``ngrok http 3000`` that connects our server to the webhook by port 3000. A new windows pop out

```
Select C:\Users\eugen\AppData\Roaming\npm\node_modules\ngrrok\bin\ngrok.exe
ngrok by @inconshreveable
Session Status      online
Session Expires    1 hour, 59 minutes
Update             update available (version 2.3.37, Ctrl-U to update)
Version            2.3.35
Region             United States (us)
Web Interface       http://127.0.0.1:4041
Forwarding          http://e37a5e45580f.ngrok.io -> http://localhost:3000
Forwarding          https://e37a5e45580f.ngrok.io -> http://localhost:3000
Connections
  ttl    opn    rt1    rt5    p50    p90
    0     0     0.00  0.00  0.00  0.00
```

We have to take the “Forwarding link”, the one highlighted, and register in our Messenger application with our access token also.

Edit Callback URL

Callback URL

https://e37a5e45580f.ngrok.io

Verify Token

whatever I want

Learn more

Cancel

Verify and Save

After we run our server with `nodemon server.js` command. We can verify and save the webhook and if everything is alright we should receive a message that the webhook is well registered.

```
PS F:\Facultate\Anul 2\ESILV\Sem2\ChatBot and Recommendation Sys\project1\BookBot\chatbot_recommendation> nodemon .\server.js
[nodemon] 2.0.7
[nodemon] to restart at any time, enter `rs`
[nodemon] watching path(s): *.*
[nodemon] watching extensions: js,mjs,json
[nodemon] starting `node .\server.js`
FBeamer Bot Service running on Port 3000
Webhook registered!
```

Now we can exchange messages with our chatbot.

The messages we can exchange with our chatbot are:

- Basic greetings messages, for example:
  - Hi
  - How are you?
- Request for a book:
  - I want a book
- Giving info about us such that he can recommend us a book:
  - My favorite book is <title of a book>
  - My favorite book is <title of a book> by <name of author>

- My favorite book is <title of a book> that belongs to the serie <serie name>
- My favorite book is <title of a book> by <name of author> that belongs to the serie <serie name>

The recommendation system can be find at api.py in the recommendation folder.

The building phase of the model follows the reflexion from the notebook in the same folder.