

SET UP ANDROID STUDIO

PATH FOR APK: Secretary\Sarah\app\build\outputs\apk\debug

Open the android studio project saved under the name “Sarah” and click on the run button. Make sure that you have the latest version of android studio installed and set up on your desktop.

Compatible devices: All Android Devices

The application can also be run using genymotion or android studio’s emulator.

Some of the features such as calendar and contacts will not open on the Samsung device due to the security reasons as the app is not downloaded from the play store, disabling them would allow the application to function well.

Make sure that Google contacts, calendar and Gmail are installed on your device.

NOTE MAKER

Pre-requisites

- Software
 - PyCharm: <https://www.jetbrains.com/pycharm/download> (The Python script must run on Python version 3.7 or below as with 3.8 or above)
 - Android Studio: <https://developer.android.com/studio>
- Firebase
 - Make an account on google firebase, and connect it to android studio as well as python with the help of pyrebase.
 - Firebase Storage needs to be connected.

Procedure

- Python – PyCharm
 - Install all these libraries by clicking on the bulb which pops up or typing them down manually in the PyCharm terminal
 - pip3 install pyrebase4

```

main.py x
1  import importlib
2  import urllib
3  from sklearn.feature_extraction.text import TfidfVectorizer
4  import string
5  from nltk.corpus import stopwords
6  from nltk import sent_tokenize, word_tokenize, WordNetLemmatizer
7  import pandas as pd
8  import pyrebase
9  from warnings import simplefilter
10 import inputs

```

- Make sure to download the JSON file (and store in appropriate location) from firebase service account before setting up config.

```

config = {
    "apiKey": "AIzaSyB70srkaYwGkf8cI23JcnuhVG2KVhPGk4s",
    "authDomain": "virtual-secretary-fec6f.firebaseio.com",
    "databaseURL": "https://virtual-secretary-fec6f.firebaseio.com",
    "projectId": "virtual-secretary-fec6f",
    "storageBucket": "virtual-secretary-fec6f.appspot.com",
    "messagingSenderId": "118347623643",
    "appId": "1:118347623643:web:f74b35f786bd3ebc30b0fe",
    "measurementId": "G-NPW2T0EWJ1",
    "serviceAccount": "/Users/faizarahman/Desktop/virtual-secretary.json"
}

```

- When a new file is created on your device, make sure to provide its path in order to read its content.

```

file1 = open("MyFile.txt", "w+")
file1.write(summary)
file1.read()
file1.close()

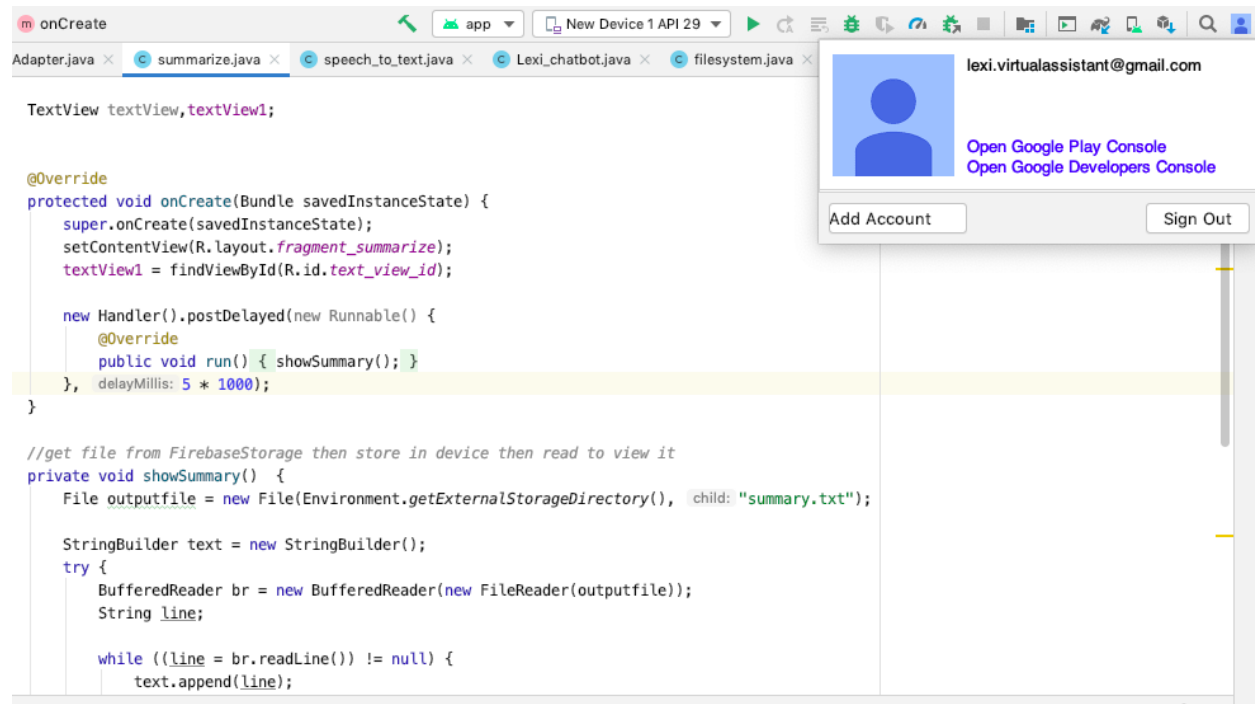
with open('MyFile.txt', 'r') as f2:
    data = f2.read()

fixresult = "/Users/faizarahman/Desktop/MyFile.txt"
cloudfilename = "Summarized Text"
storage.child(cloudfilename).put(fixresult)
print(storage.child(cloudfilename).get_url(None))

```

NOTE: The python script has to be run manually when the summarize button is clicked, to update the summary file for the recording requested, on firebase storage.

- Android Studio
 - Make sure to log into the same firebase account.



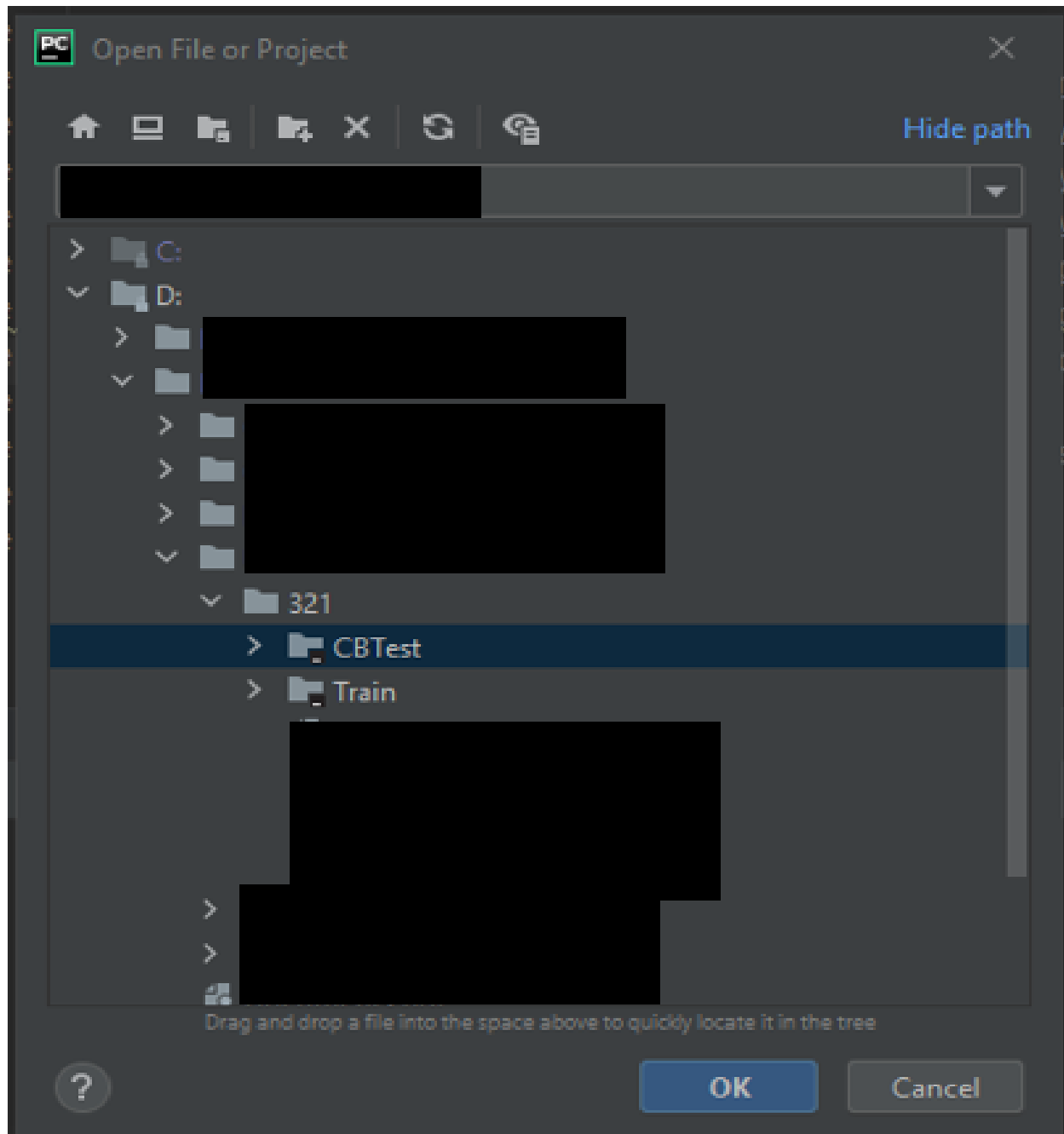
VOICE ASSISTANT

Pre-requisites

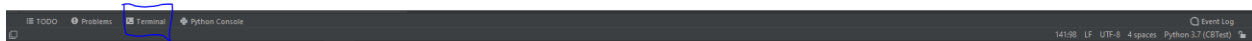
- Software
 - Anaconda: <https://www.anaconda.com/products/individual> (The Python script must run on Python version 3.7 or below as with 3.8 or above, some libraries such as tensor flow used for training models are not supported)
 - PyCharm: <https://www.jetbrains.com/pycharm/download>
 - Android Studio: <https://developer.android.com/studio>
 - NGROK: <https://ngrok.com/download> (On Windows, NGROK must be downloaded and installed in the System32 directory)
 - WinRAR: <https://www.win-rar.com/start.html?&L=0>
- Minimum Hardware Specifications
 - Dedicated GPU: 8GB (NVIDIA preferred as the chat bot training method utilizes NVIDIA CUDA to use the dedicated GPU for training and predicting)
 - RAM: 4GB

Procedure

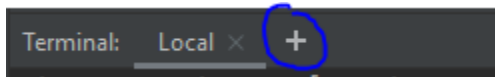
- Extract the folder with the name “VoiceAssistant.zip” into desired directory.
- Open PyCharm (**Note: Jupyter Notebook will not work as it does not support terminal functionality. Other IDE’s were not tested but they must have a terminal to be able to execute commands for the CMD. Hence, PyCharm is recommended**)
- Open file or project and locate “CBTest” and then, press “OK”



- Open two terminals at the bottom left of the IDE and run the following commands (might take a while):



After clicking on the terminal open another terminal:



On the first terminal type: `rasa run -m models --enable-api --endpoints endpoints.yml` and press enter.

```
Terminal: Local (2) x Local x +
Microsoft Windows [Version 10.0.18363.1198]
(c) 2019 Microsoft Corporation. All rights reserved.

>rasa run -m models --enable-api --endpoints endpoints.yml
2020-12-08 20:17:49 INFO      root - Starting Rasa server on http://localhost:5005
2020-12-08 20:17:53 INFO      root - Rasa server is up and running.
```

On the second terminal type: `rasa run actions` and press enter.

```
Terminal: Local (2) x Local x +
Microsoft Windows [Version 10.0.18363.1198]
(c) 2019 Microsoft Corporation. All rights reserved.

>rasa run actions
2020-12-08 20:17:01 INFO      rasa_sdk.endpoint - Starting action endpoint server...
2020-12-08 20:17:10 INFO      rasa_sdk.executor - Registered function for 'action_content'.
2020-12-08 20:17:10 INFO      rasa_sdk.executor - Registered function for 'action_file'.
2020-12-08 20:17:10 INFO      rasa_sdk.executor - Registered function for 'action_folder'.
2020-12-08 20:17:10 INFO      rasa_sdk.executor - Registered function for 'action_summarize'.
2020-12-08 20:17:10 INFO      rasa_sdk.executor - Registered function for 'action_date_time'.
2020-12-08 20:17:10 INFO      rasa_sdk.executor - Registered function for 'action_weather'.
2020-12-08 20:17:10 INFO      rasa_sdk.executor - Registered function for 'action_google'.
2020-12-08 20:17:10 INFO      rasa_sdk.endpoint - Action endpoint is up and running on http://localhost:5055
```

- Open NGROK

```

EXAMPLES:
  ngrok http 80 # secure public URL for port 80 web server
  ngrok http -subdomain=baz 8080 # port 8080 available at baz.ngrok.io
  ngrok http foo.dev:80 # tunnel to host:port instead of localhost
  ngrok http https://localhost # expose a local https server
  ngrok tcp 22 # tunnel arbitrary TCP traffic to port 22
  ngrok tls -hostname=foo.com 443 # TLS traffic for foo.com to port 443
  ngrok start foo bar baz # start tunnels from the configuration file

VERSION:
  2.3.35

AUTHOR:
  inconshreveable - <alan@ngrok.com>

COMMANDS:
  authtoken  save authtoken to configuration file
  credits    prints author and licensing information
  http       start an HTTP tunnel
  start      start tunnels by name from the configuration file
  tcp        start a TCP tunnel
  tls        start a TLS tunnel
  update     update ngrok to the latest version
  version    print the version string
  help       Shows a list of commands or help for one command

ngrok is a command line application, try typing 'ngrok.exe http 80'
at this terminal prompt to expose port 80.
C:\Windows\system32>

```

- Type on NGROK: *ngrok http 5005* (depending on which port is being used to host the bot locally. By default, its 5005) and press enter:

```

ngrok by @inconshreveable (Ctrl+C to quit)

Session Status      online
Session Expires     7 hours, 59 minutes
Version             2.3.35
Region              United States (us)
Web Interface        http://127.0.0.1:4040
Forwarding           http://146f86c4ca50.ngrok.io -> http://localhost:5005
                    https://146f86c4ca50.ngrok.io -> http://localhost:5005

Connections         ttl    opn    rt1    rt5    p50    p90
                   0      0      0.00   0.00   0.00   0.00

```

Copy any link either *http* or *https*.

- Open Android studio project.
 - Navigate to “Lexi_chatbot.java” class.
 - Under the “sendMessage()” method, replace the link copied from NGROK with the previous link as shown in the image below:

```

public void sendMessage(View view) {
    UserMessage userMessage = null;
    MessageSender messageSender;
    String msg = editText.getText().toString();
    OkHttpClient okHttpClient = new OkHttpClient();
    Retrofit retrofit = new Retrofit.Builder()
        .baseUrl("https://ff5ec107e35e.ngrok.io/webhooks/rest/")
        .client(okHttpClient)
        .addConverterFactory(GsonConverterFactory.create())
        .build();
}

```

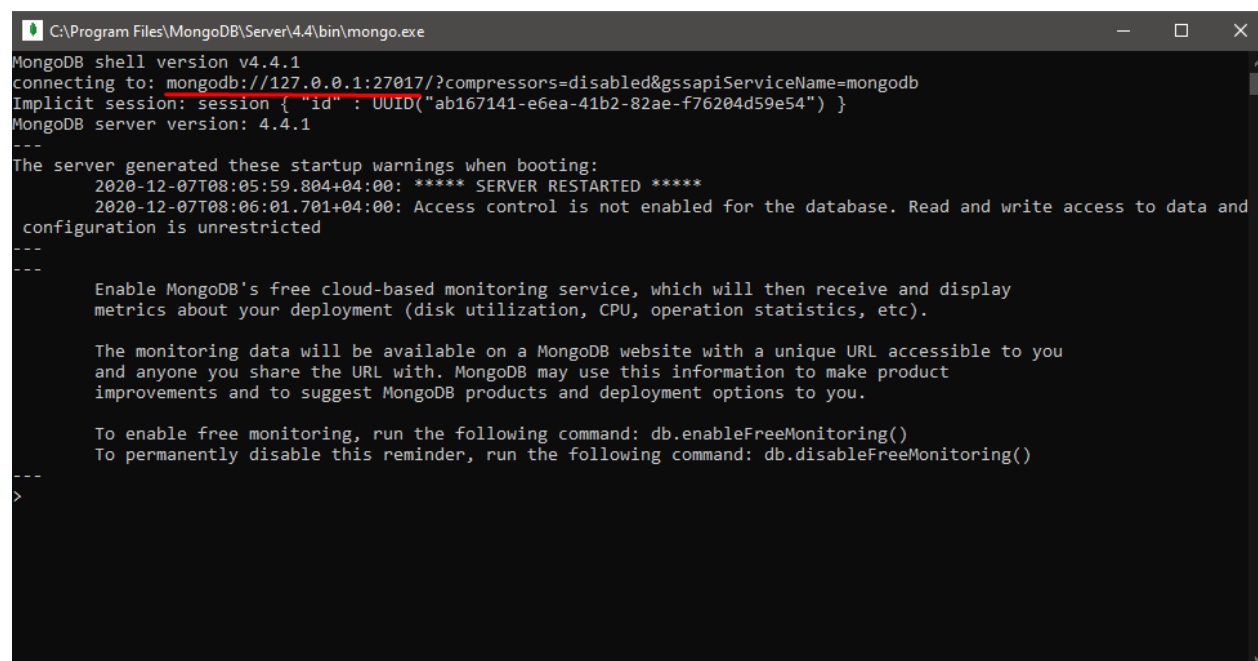
Note: After every 8 hours, NGROK will shut down and must restart and hence, from opening the NGROK step until the end, it must be done again as the server is being restarted every 8 hours. Alternatively, other methods could be used to host the bot permanently without having to change the link every 8 hours. However, they are paid.

FILE SYSTEM

First you would need to download and install mongoDB on your machine if not already installed. Please follow this link to install it:

[How to Install MongoDB on Windows 10 - YouTube](#)

After which you then open the mongo shell and look for this link below:



```

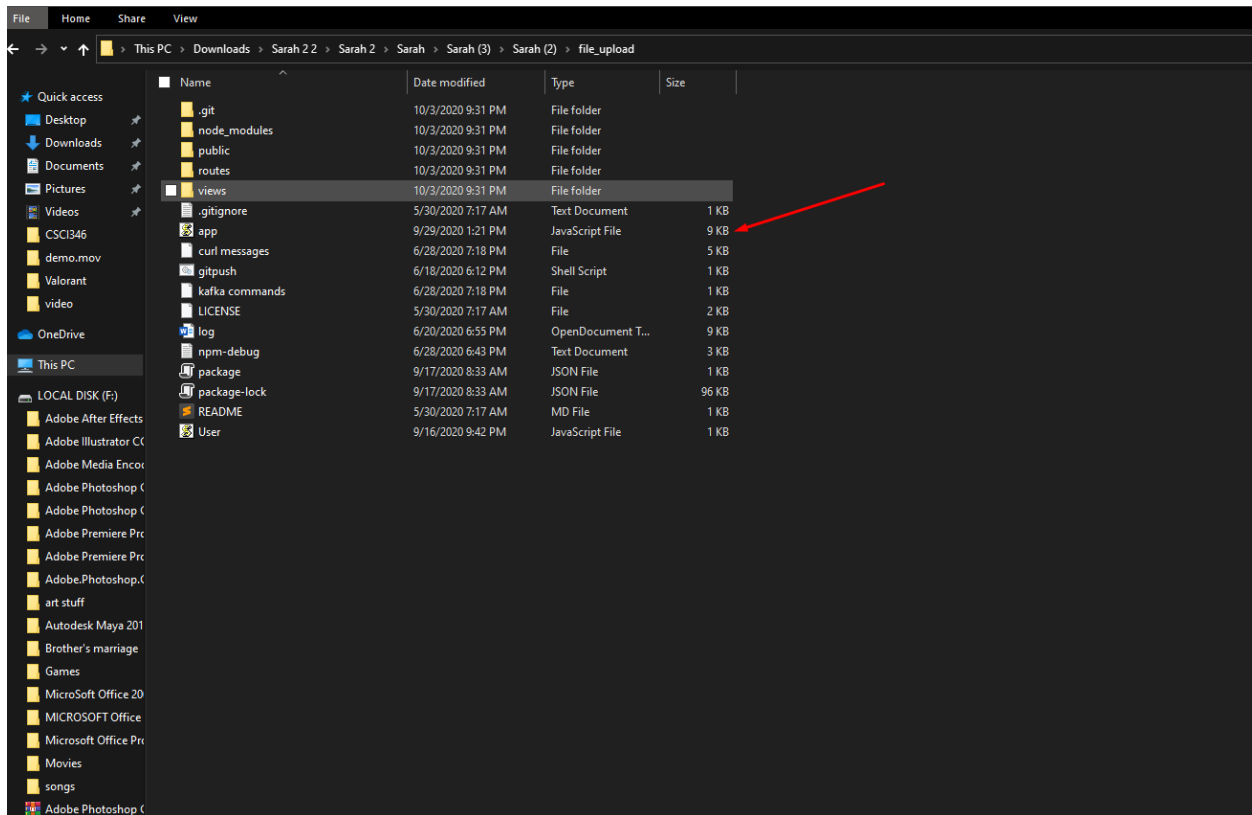
C:\Program Files\MongoDB\Server\4.4\bin\mongo.exe
MongoDB shell version v4.4.1
connecting to: mongodb://127.0.0.1:27017/?compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("ab167141-e6ea-41b2-82ae-f76204d59e54") }
MongoDB server version: 4.4.1
---
The server generated these startup warnings when booting:
  2020-12-07T08:05:59.804+04:00: ***** SERVER RESTARTED *****
  2020-12-07T08:06:01.701+04:00: Access control is not enabled for the database. Read and write access to data and
  configuration is unrestricted
---
---
  Enable MongoDB's free cloud-based monitoring service, which will then receive and display
  metrics about your deployment (disk utilization, CPU, operation statistics, etc).

  The monitoring data will be available on a MongoDB website with a unique URL accessible to you
  and anyone you share the URL with. MongoDB may use this information to make product
  improvements and to suggest MongoDB products and deployment options to you.

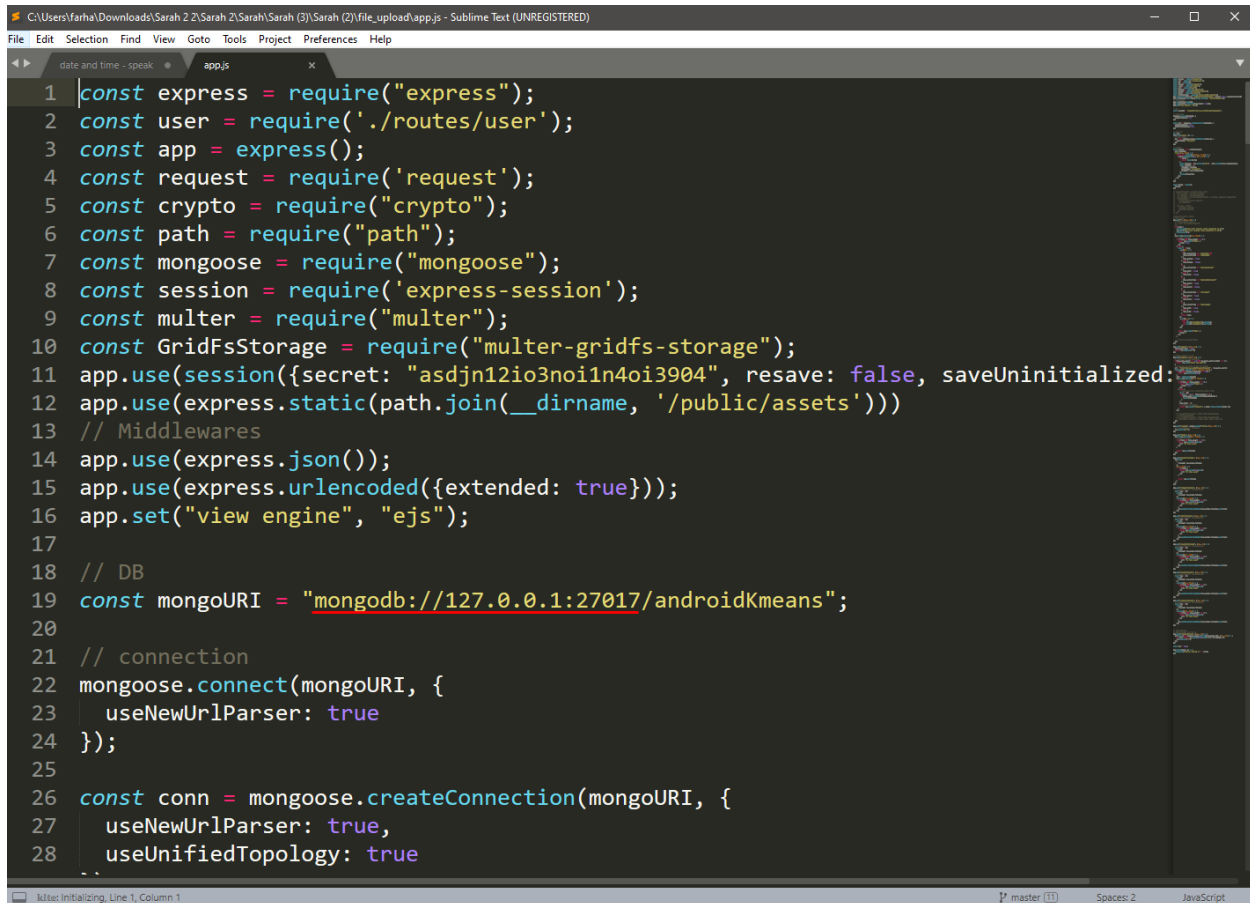
  To enable free monitoring, run the following command: db.enableFreeMonitoring()
  To permanently disable this reminder, run the following command: db.disableFreeMonitoring()
---
>

```


You then take that link and paste it in the app.js file which can be found under the file upload folder as seen below:



Once you are within the app.js file paste it as highlighted below on line number 19:



```
1 const express = require("express");
2 const user = require('./routes/user');
3 const app = express();
4 const request = require('request');
5 const crypto = require("crypto");
6 const path = require("path");
7 const mongoose = require("mongoose");
8 const session = require('express-session');
9 const multer = require("multer");
10 const GridFsStorage = require("multer-gridfs-storage");
11 app.use(session({secret: "asdjn12io3noi1n4oi3904", resave: false, saveUninitialized:
12 app.use(express.static(path.join(__dirname, '/public/assets'))))
13 // Middlewares
14 app.use(express.json());
15 app.use(express.urlencoded({extended: true}));
16 app.set("view engine", "ejs");
17
18 // DB
19 const mongoURI = "mongodb://127.0.0.1:27017/androidKmeans";
20
21 // connection
22 mongoose.connect(mongoURI, {
23   useNewUrlParser: true
24 });
25
26 const conn = mongoose.createConnection(mongoURI, {
27   useNewUrlParser: true,
28   useUnifiedTopology: true
```

If the link is the same as the screenshots above then obviously no changes are required to be made to the app.js file. After which you then open the command line and install the dependencies required for the project like so:

```
npm install -y
```

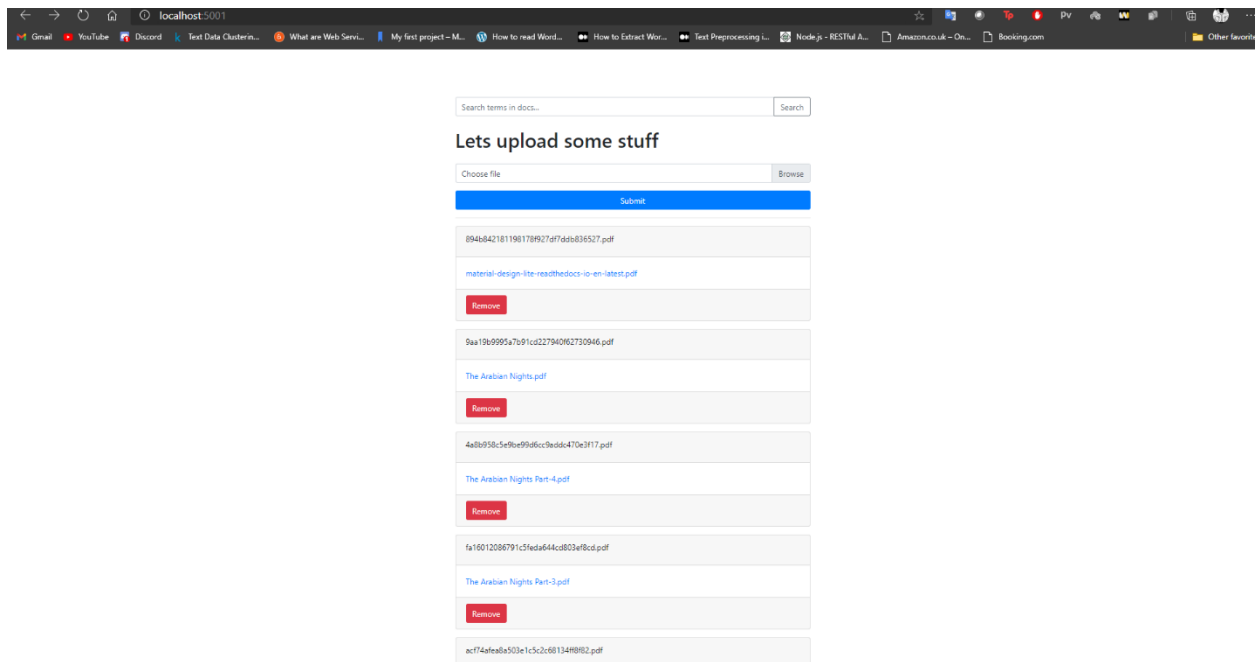
after which you then start the node.js server by typing the following commands:

```
npm start
```

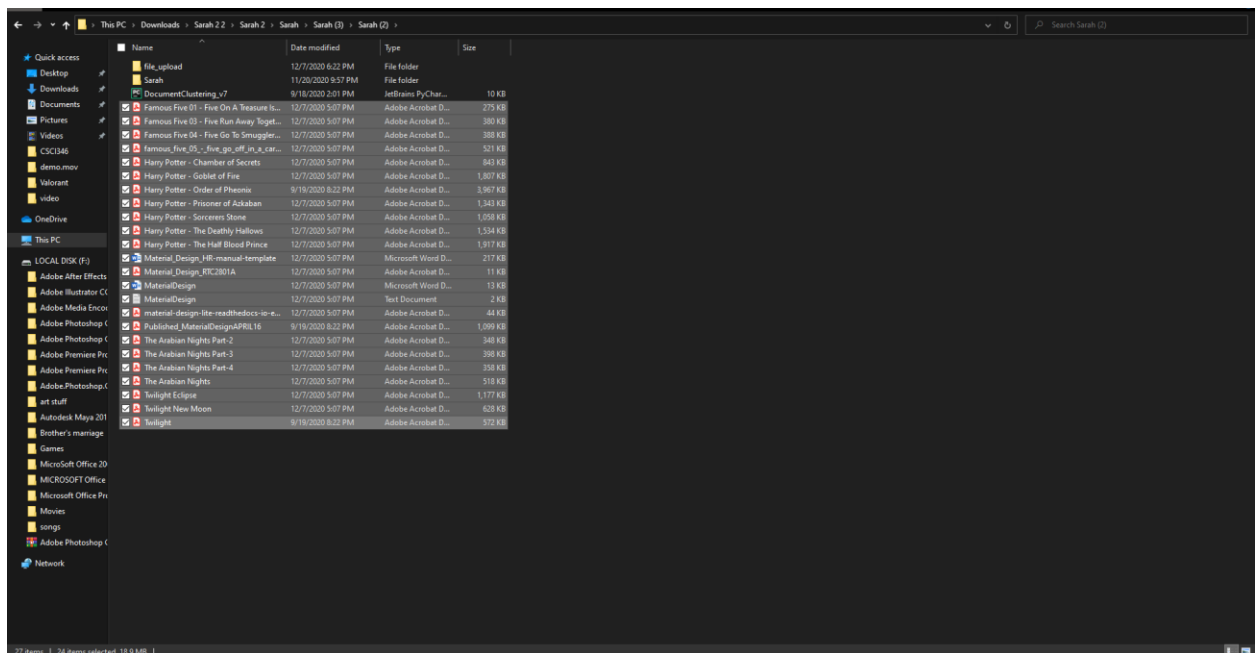
you can now open your browser and search:

<http://localhost:5001/>

you will then be greeted with the following the interface:



You can now upload the highlighted documents present in this folder:



You can now run the document clustering code by opening the command line within the same directory and typing the following command and as a result after sometime your command line should look like this:

```
C:\Windows\System32\cmd.exe - Python DocumentClustering_v7.py
Microsoft Windows [Version 10.0.19041.630]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\farha\Downloads\Sarah 2 2\Sarah 2\Sarah\Sarah (3)\Sarah (2)>Python DocumentClustering_v7.py
[nltk_data] Downloading package averaged_perceptron_tagger to
[nltk_data] C:\Users\farha\AppData\Roaming\nltk_data...
[nltk_data] Package averaged_perceptron_tagger is already up-to-
[nltk_data] date!
[nltk_data] Downloading package wordnet to
[nltk_data] C:\Users\farha\AppData\Roaming\nltk_data...
[nltk_data] Package wordnet is already up-to-date!
[nltk_data] Downloading package maxent_ne_chunker to
[nltk_data] C:\Users\farha\AppData\Roaming\nltk_data...
[nltk_data] Package maxent_ne_chunker is already up-to-date!
[nltk_data] Downloading package words to
[nltk_data] C:\Users\farha\AppData\Roaming\nltk_data...
[nltk_data] Package words is already up-to-date!
* Serving Flask app "DocumentClustering_v7" (lazy loading)
* Environment: production
  WARNING: This is a development server. Do not use it in a production deployment.
  Use a production WSGI server instead.
* Debug mode: off
* Running on http://127.0.0.1:8238/ (Press CTRL+C to quit)
```

Once that is done setup ngrok using the following link:

[Get a public URL to Localhost — The easy way | by Dilan Tharaka | Medium](#)

After which you can then open ngrok and type the following command like so:

```
C:\Users\farha\Downloads\ngrok-stable-windows-amd64\ngrok.exe

EXAMPLES:
  ngrok http 80 # secure public URL for port 80 web server
  ngrok http -subdomain=baz 8080 # port 8080 available at baz.ngrok.io
  ngrok http foo.dev:80 # tunnel to host:port instead of localhost
  ngrok http https://localhost # expose a local https server
  ngrok tcp 22 # tunnel arbitrary TCP traffic to port 22
  ngrok tls -hostname=foo.com 443 # TLS traffic for foo.com to port 443
  ngrok start foo bar baz # start tunnels from the configuration file

VERSION:
  2.3.35

AUTHOR:
  inconshreveable - <alan@ngrok.com>

COMMANDS:
  authtoken save authtoken to configuration file
  credits prints author and licensing information
  http start an HTTP tunnel
  start start tunnels by name from the configuration file
  tcp start a TCP tunnel
  tls start a TLS tunnel
  update update ngrok to the latest version
  version print the version string
  help Shows a list of commands or help for one command

ngrok is a command line application, try typing 'ngrok.exe http 80'
at this terminal prompt to expose port 80.
C:\Users\farha\Downloads\ngrok-stable-windows-amd64>ngrok http 5001
```

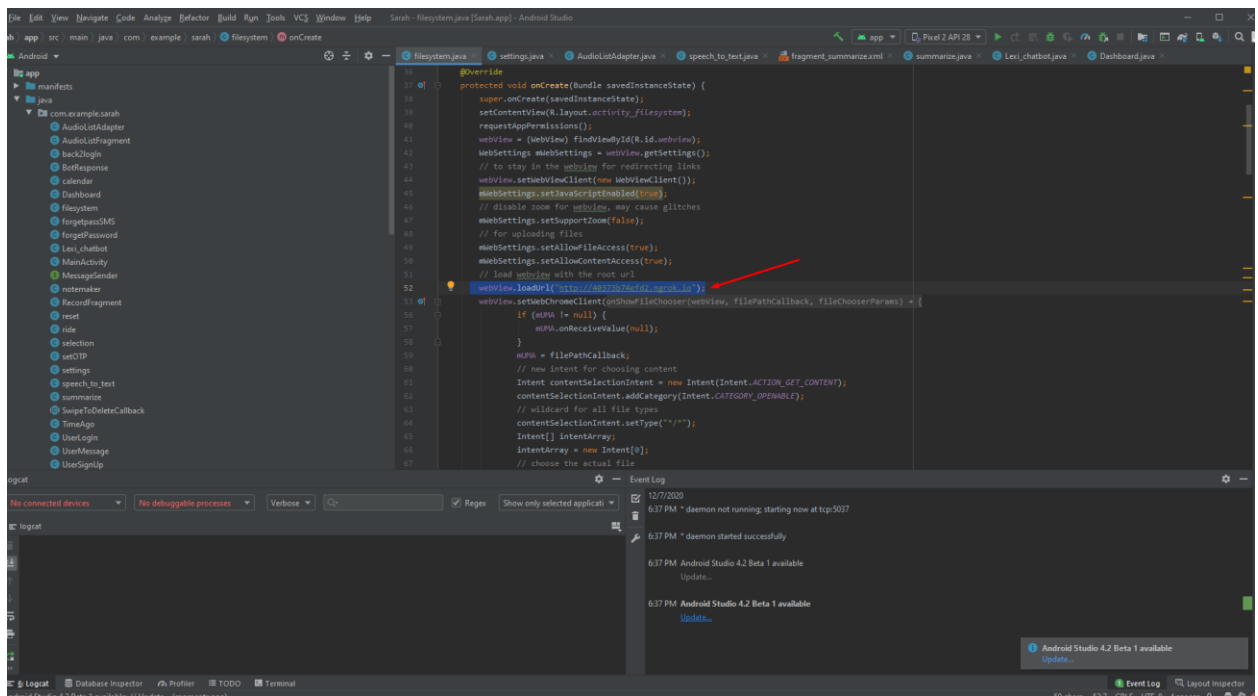
```
C:\Users\farha\Downloads\ngrok-stable-windows-amd64\ngrok.exe - ngrok http 5001

ngrok by @inconshreveable (Ctrl+C to quit)

Session Status      online
Account              farhanthegamer162@gmail.com (Plan: Free)
Version              2.3.35
Region               United States (us)
Web Interface        http://127.0.0.1:4040
Forwarding            http://40373b74efd2.ngrok.io -> http://localhost:5001
Forwarding            https://40373b74efd2.ngrok.io -> http://localhost:5001

Connections          ttl    opn    rt1    rt5    p50    p90
                   0      0      0.00   0.00   0.00   0.00
```

After which you take the forwarding url shown in the above screenshot and then paste it on the android studio code under the filesystem.java file as shown below on line 52:



```
h: app | src | main | java | com | example | sarah | filesystem | onCreate

filesystem.java | Settings.java | AudioListAdapter.java | speech_to_text.java | fragment_summarize.xml | summarize.java | Lexi_chatbot.java | Dashboard.java

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 | 208 | 209 | 210 | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 | 221 | 222 | 223 | 224 | 225 | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234 | 235 | 236 | 237 | 238 | 239 | 240 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 | 256 | 257 | 258 | 259 | 260 | 261 | 262 | 263 | 264 | 265 | 266 | 267 | 268 | 269 | 270 | 271 | 272 | 273 | 274 | 275 | 276 | 277 | 278 | 279 | 280 | 281 | 282 | 283 | 284 | 285 | 286 | 287 | 288 | 289 | 290 | 291 | 292 | 293 | 294 | 295 | 296 | 297 | 298 | 299 | 300 | 301 | 302 | 303 | 304 | 305 | 306 | 307 | 308 | 309 | 310 | 311 | 312 | 313 | 314 | 315 | 316 | 317 | 318 | 319 | 320 | 321 | 322 | 323 | 324 | 325 | 326 | 327 | 328 | 329 | 330 | 331 | 332 | 333 | 334 | 335 | 336 | 337 | 338 | 339 | 340 | 341 | 342 | 343 | 344 | 345 | 346 | 347 | 348 | 349 | 350 | 351 | 352 | 353 | 354 | 355 | 356 | 357 | 358 | 359 | 360 | 361 | 362 | 363 | 364 | 365 | 366 | 367 | 368 | 369 | 370 | 371 | 372 | 373 | 374 | 375 | 376 | 377 | 378 | 379 | 380 | 381 | 382 | 383 | 384 | 385 | 386 | 387 | 388 | 389 | 390 | 391 | 392 | 393 | 394 | 395 | 396 | 397 | 398 | 399 | 400 | 401 | 402 | 403 | 404 | 405 | 406 | 407 | 408 | 409 | 410 | 411 | 412 | 413 | 414 | 415 | 416 | 417 | 418 | 419 | 420 | 421 | 422 | 423 | 424 | 425 | 426 | 427 | 428 | 429 | 430 | 431 | 432 | 433 | 434 | 435 | 436 | 437 | 438 | 439 | 440 | 441 | 442 | 443 | 444 | 445 | 446 | 447 | 448 | 449 | 450 | 451 | 452 | 453 | 454 | 455 | 456 | 457 | 458 | 459 | 460 | 461 | 462 | 463 | 464 | 465 | 466 | 467 | 468 | 469 | 470 | 471 | 472 | 473 | 474 | 475 | 476 | 477 | 478 | 479 | 480 | 481 | 482 | 483 | 484 | 485 | 486 | 487 | 488 | 489 | 490 | 491 | 492 | 493 | 494 | 495 | 496 | 497 | 498 | 499 | 500 | 501 | 502 | 503 | 504 | 505 | 506 | 507 | 508 | 509 | 510 | 511 | 512 | 513 | 514 | 515 | 516 | 517 | 518 | 519 | 520 | 521 | 522 | 523 | 524 | 525 | 526 | 527 | 528 | 529 | 530 | 531 | 532 | 533 | 534 | 535 | 536 | 537 | 538 | 539 | 540 | 541 | 542 | 543 | 544 | 545 | 546 | 547 | 548 | 549 | 550 | 551 | 552 | 553 | 554 | 555 | 556 | 557 | 558 | 559 | 560 | 561 | 562 | 563 | 564 | 565 | 566 | 567 | 568 | 569 | 570 | 571 | 572 | 573 | 574 | 575 | 576 | 577 | 578 | 579 | 580 | 581 | 582 | 583 | 584 | 585 | 586 | 587 | 588 | 589 | 590 | 591 | 592 | 593 | 594 | 595 | 596 | 597 | 598 | 599 | 600 | 601 | 602 | 603 | 604 | 605 | 606 | 607 | 608 | 609 | 610 | 611 | 612 | 613 | 614 | 615 | 616 | 617 | 618 | 619 | 620 | 621 | 622 | 623 | 624 | 625 | 626 | 627 | 628 | 629 | 630 | 631 | 632 | 633 | 634 | 635 | 636 | 637 | 638 | 639 | 640 | 641 | 642 | 643 | 644 | 645 | 646 | 647 | 648 | 649 | 650 | 651 | 652 | 653 | 654 | 655 | 656 | 657 | 658 | 659 | 660 | 661 | 662 | 663 | 664 | 665 | 666 | 667 | 668 | 669 | 670 | 671 | 672 | 673 | 674 | 675 | 676 | 677 | 678 | 679 | 680 | 681 | 682 | 683 | 684 | 685 | 686 | 687 | 688 | 689 | 690 | 691 | 692 | 693 | 694 | 695 | 696 | 697 | 698 | 699 | 700 | 701 | 702 | 703 | 704 | 705 | 706 | 707 | 708 | 709 | 710 | 711 | 712 | 713 | 714 | 715 | 716 | 717 | 718 | 719 | 720 | 721 | 722 | 723 | 724 | 725 | 726 | 727 | 728 | 729 | 730 | 731 | 732 | 733 | 734 | 735 | 736 | 737 | 738 | 739 | 740 | 741 | 742 | 743 | 744 | 745 | 746 | 747 | 748 | 749 | 750 | 751 | 752 | 753 | 754 | 755 | 756 | 757 | 758 | 759 | 760 | 761 | 762 | 763 | 764 | 765 | 766 | 767 | 768 | 769 | 770 | 771 | 772 | 773 | 774 | 775 | 776 | 777 | 778 | 779 | 780 | 781 | 782 | 783 | 784 | 785 | 786 | 787 | 788 | 789 | 790 | 791 | 792 | 793 | 794 | 795 | 796 | 797 | 798 | 799 | 800 | 801 | 802 | 803 | 804 | 805 | 806 | 807 | 808 | 809 | 810 | 811 | 812 | 813 | 814 | 815 | 816 | 817 | 818 | 819 | 820 | 821 | 822 | 823 | 824 | 825 | 826 | 827 | 828 | 829 | 830 | 831 | 832 | 833 | 834 | 835 | 836 | 837 | 838 | 839 | 840 | 841 | 842 | 843 | 844 | 845 | 846 | 847 | 848 | 849 | 850 | 851 | 852 | 853 | 854 | 855 | 856 | 857 | 858 | 859 | 860 | 861 | 862 | 863 | 864 | 865 | 866 | 867 | 868 | 869 | 870 | 871 | 872 | 873 | 874 | 875 | 876 | 877 | 878 | 879 | 880 | 881 | 882 | 883 | 884 | 885 | 886 | 887 | 888 | 889 | 890 | 891 | 892 | 893 | 894 | 895 | 896 | 897 | 898 | 899 | 900 | 901 | 902 | 903 | 904 | 905 | 906 | 907 | 908 | 909 | 910 | 911 | 912 | 913 | 914 | 915 | 916 | 917 | 918 | 919 | 920 | 921 | 922 | 923 | 924 | 925 | 926 | 927 | 928 | 929 | 930 | 931 | 932 | 933 | 934 | 935 | 936 | 937 | 938 | 939 | 940 | 941 | 942 | 943 | 944 | 945 | 946 | 947 | 948 | 949 | 950 | 951 | 952 | 953 | 954 | 955 | 956 | 957 | 958 | 959 | 960 | 961 | 962 | 963 | 964 | 965 | 966 | 967 | 968 | 969 | 970 | 971 | 972 | 973 | 974 | 975 | 976 | 977 | 978 | 979 | 980 | 981 | 982 | 983 | 984 | 985 | 986 | 987 | 988 | 989 | 990 | 991 | 992 | 993 | 994 | 995 | 996 | 997 | 998 | 999 | 1000 | 1001 | 1002 | 1003 | 1004 | 1005 | 1006 | 1007 | 1008 | 1009 | 1010 | 1011 | 1012 | 1013 | 1014 | 1015 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