

Real Time Indian Railways Twitter Complaint Administration System



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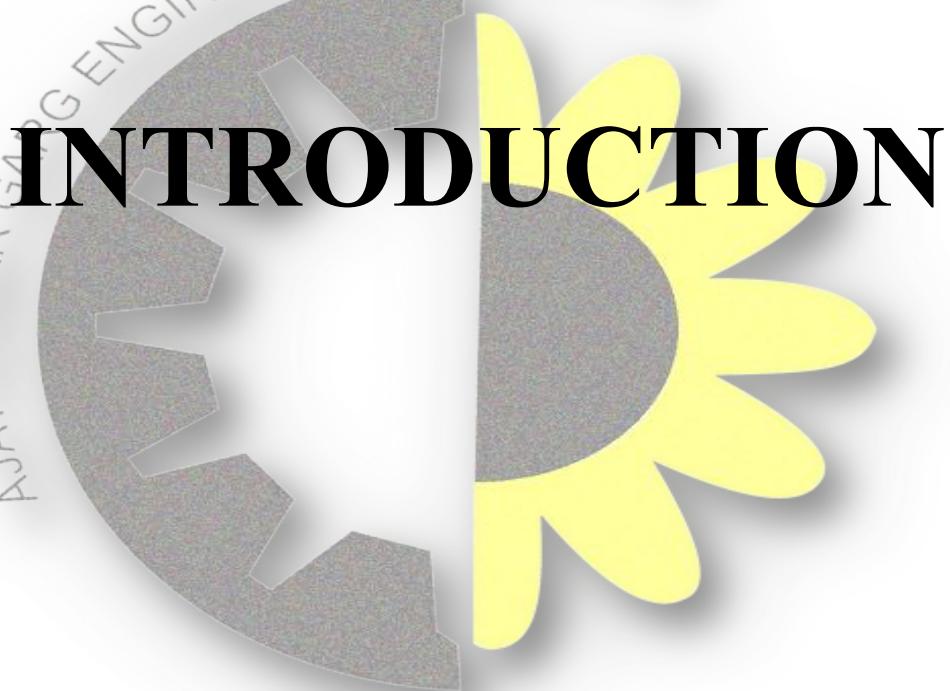
Guided By:

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AJAY KUMAR GANDHI ENGINEERING COLLEGE



INTRODUCTION

- The project reduces the work complexity of scanning through thousands of useless data to find particular information but from here we can directly find the relevant tweets that needs attention.
- To solve the problem , we will be using a Machine Learning (Naive Bayes) model.
- The machine learning model will be flexible and can be applied on various other local authorities like Nagar Nigam, State electricity board and various other authorities.
- We just have to filter the tweets on the basis of that particular authority. Reduced operational time.

Project Purpose

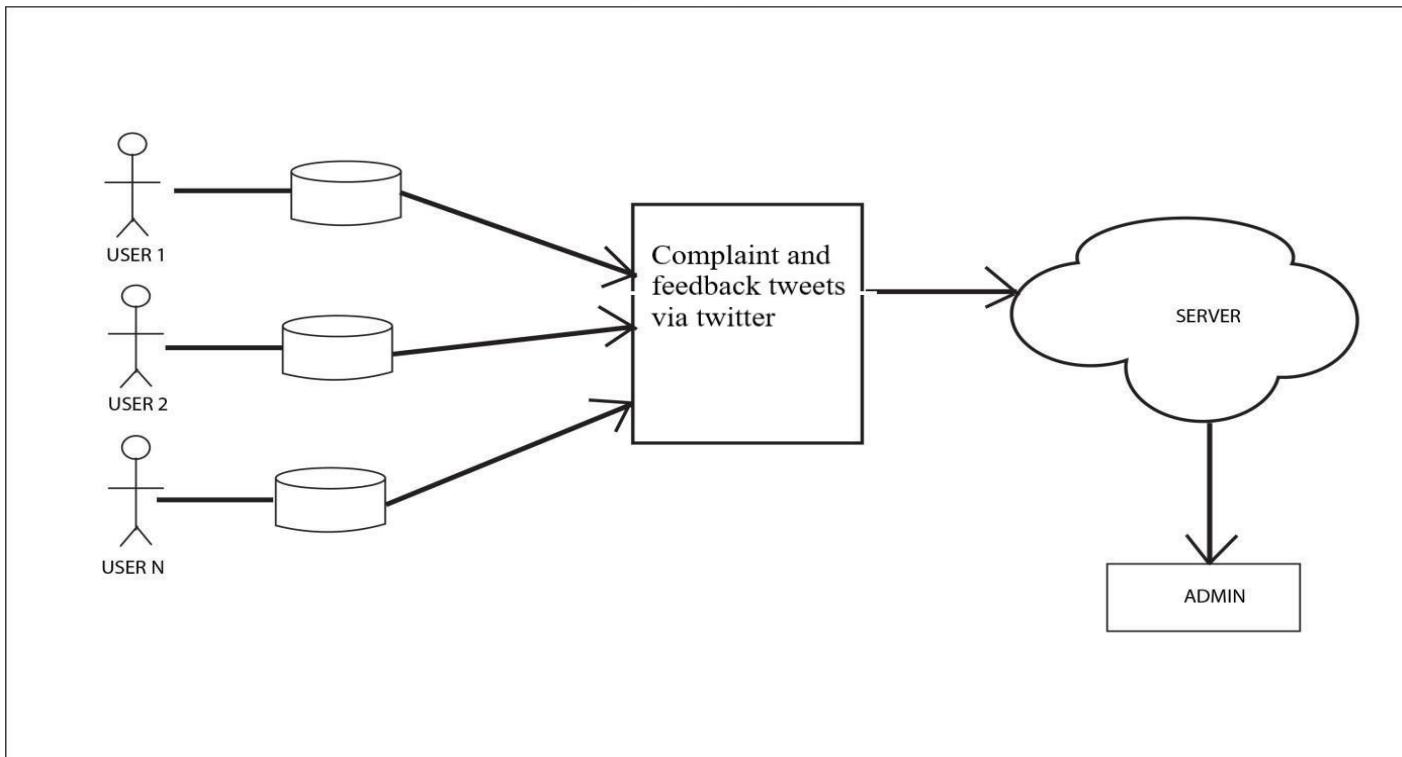
- We try to implement and improve the current working model to a better machine learning model in the future development and also try to work with new cutting edge technology stack.
- Increase fault-tolerance.
- Increased accuracy and reliability.
- Increased operational efficiency.
- This software package can be readily used by non-programming personal avoiding human handled chance of error.

Project Scope

This project has a large scope as it has the following features which help in making it easy to use, understand and modify it:

- Automation of Feedback and complaint addressing.
- No Need to do Paper Work.
- To save the environment by using paper free work.
- To increase the accuracy and efficiency of the complaint addressing procedure.
- Management of passenger data

Description of Project



Description of Platforms

- The proposed system will have Five Modules
 - 1.Data Stream Pipelining
 - 2.Machine Learning Model
 - 3.Mobile App
 - 4.Web App
 - 5.Deployment on Cloud

Data Stream Pipelining

- One of the first requirements is to get access to the streaming data; in this case, real-time tweets. Twitter provides a very convenient API to fetch tweets in a streaming manner.
- In addition, We also use Kafka to buffer the tweets before processing. Kafka provides a distributed queuing service which can be used to store the data when the data creation rate is more than processing rate. It also has several other uses.

Machine Learning Model

- In order to build real-time applications, Apache Kafka – Spark Streaming Integration are the best combinations.
- In Apache Kafka Spark Streaming Integration, there are two approaches to configure Spark Streaming to receive data from Kafka i.e. Kafka Spark Streaming Integration. First is by using Receivers and Kafka's high-level API, and a second, as well as a new approach, is without using Receivers. There are different programming models for both the approaches, such as performance characteristics and semantics guarantees.

Activities Terminal ▾ Sun 23:35 ● ryan@Schrodinger: ~

File Edit View Search Terminal Help

```
ryan@Schrodinger:~$ zkServer.sh start
ZooKeeper JMX enabled by default
Using config: /usr/local/zookeeper/bin/../conf/zoo.cfg
Starting zookeeper ... STARTED
ryan@Schrodinger:~$ 
```

 hmm

File Edit View Search Terminal Help

```
ryan@Schrodinger:~$ cd $/usr/local/kafka/
ryan@Schrodinger:/usr/local/kafka$ bin/kafka-server-start.sh config/server.properties
[2020-02-23 23:34:53,169] INFO Registered/kafka:type=kafka.Log4jController MBean (kafka.utils.Log4jControllerRegistration$)
[2020-02-23 23:34:54,530] INFO starting (kafka.server.KafkaServer)
[2020-02-23 23:34:54,531] INFO Connecting to zookeeper on localhost:2181 (kafka.server.KafkaServer)
[2020-02-23 23:34:54,635] INFO [ZooKeeperClient] Initializing a new session to localhost:2181. (kafka.zookeeper.ZooKeeperClient)
[2020-02-23 23:34:54,642] INFO Client environment:zookeeper.version=3.4.13-2d71af4dbe22557fd74f9a9b4309b15a7487f03, built on 06/29/2018 00:39 GMT (org.apache.zookeeper.ZooKeeper)
[2020-02-23 23:34:54,643] INFO Client environment:host.name=Schrodinger (org.apache.zookeeper.ZooKeeper)
[2020-02-23 23:34:54,643] INFO Client environment:java.version=1.8.0_181 (org.apache.zookeeper.ZooKeeper)
[2020-02-23 23:34:54,643] INFO Client environment:java.vendor=Oracle Corporation (org.apache.zookeeper.ZooKeeper)
[2020-02-23 23:34:54,643] INFO Client environment:java.home=/usr/lib/jvm/java-8-oracle/jre (org.apache.zookeeper.ZooKeeper)
[2020-02-23 23:34:54,644] INFO Client environment:java.class.path=/usr/local/kafka/bin/../libs/activation-1.1.1.jar:/usr/local/kafka/bin/../libs/aopal-liance-repackaged-2.5.0-b42.jar:/usr/local/kafka/bin/../libs/argparse4j-0.7.0.jar:/usr/local/kafka/bin/../libs/audience-annotations-0.5.0.jar:/usr/local/kafka/bin/../libs/commons-lang3-3.5.jar:/usr/local/kafka/bin/../libs/connect-api-2.0.0.jar:/usr/local/kafka/bin/../libs/connect-basic-auth-extension-2.0.0.jar:/usr/local/kafka/bin/../libs/connect-file-2.0.0.jar:/usr/local/kafka/bin/../libs/connect-json-2.0.0.jar:/usr/local/kafka/bin/../libs/connect-runtime-2.0.0.jar:/usr/local/kafka/bin/../libs/connect-transforms-2.0.0.jar:/usr/local/kafka/bin/../libs/guava-20.0.jar:/usr/local/kafka/bin/../libs/hk2-api-2.5.0-b42.jar:/usr/local/kafka/bin/../libs/hk2-locator-2.5.0-b42.jar:/usr/local/kafka/bin/../libs/hk2-utils-2.5.0-b42.jar:/usr/local/kafka/bin/../libs/jackson-annotations-2.9.6.jar:/usr/local/kafka/bin/../libs/jackson-core-2.9.6.jar:/usr/local/kafka/bin/../libs/jackson-databind-2.9.6.jar:/usr/local/kafka/bin/../libs/jackson-jaxrs-base-2.9.6.jar:/usr/local/kafka/bin/../libs/jackson-jaxrs-json-provider-2.9.6.jar:/usr/local/kafka/bin/../libs/jackson-module-jaxb-annotations-2.9.6.jar:/usr/local/kafka/bin/../libs/javassist-3.22.0-CR2.jar:/usr/local/kafka/bin/../libs/javax.annotation-api-1.2.jar:/usr/local/kafka/bin/../libs/javax.inject-1.jar:/usr/local/kafka/bin/../libs/javax.inject-2.5.0-b42.jar:/usr/local/kafka/bin/../libs/javax.servlet-api-3.1.0.jar:/usr/local/kafka/bin/../libs/javax.ws.rs-api-2.1.jar:/usr/local/kafka/bin/../libs/jaxb-api-2.3.0.jar:/usr/local/kafka/bin/../libs/jersey-client-2.27.jar:/usr/local/kafka/bin/../libs/jersey-common-2.27.jar:/usr/local/kafka/bin/../libs/jersey-container-servlet-2.27.jar:/usr/local/kafka/bin/../libs/jersey-container-servlet-core-2.27.jar:/usr/local/kafka/bin/../libs/jersey-hk2-2.27.jar:/usr/local/kafka/bin/../libs/jersey-media-jaxb-2.27.jar:/usr/local/kafka/bin/../libs/jersey-server-2.27.jar:/usr/local/kafka/bin/../libs/jetty-client-9.4.11.v20180605.jar:/usr/local/kafka/bin/../libs/jetty-continuation-9.4.11.v20180605.jar:/usr/local/kafka/bin/../libs/jetty-http-9.4.11.v20180605.jar:/usr/local/kafka/bin/../libs/jetty-io-9.4.11.v20180605.jar:/usr/local/kafka/bin/../libs/jetty-security-9.4.11.v20180605.jar:/usr/local/kafka/bin/../libs/jetty-server-9.4.11.v20180605.jar:/usr/local/kafka/bin/../libs/jetty-util-9.4.11.v20180605.jar:/usr/local/kafka/bin/../libs/jopt-simple-5.0.4.jar:/usr/local/kafka/bin/../libs/kafka_2.11-2.0.0.jar:/usr/local/kafka/bin/../libs/kafka_2.11-2.0.0-sources.jar:/usr/local/kafka/bin/../libs/kafka-clients-2.0.0.jar:/usr/local/kafka/bin/..../libs/kafka-log4j-appender-2.0.0.jar:/usr/local/kafka/bin/..../libs/kafka-streams-2.0.0.jar:/usr/local/kafka/bin/..../libs/kafka-streams-examples-2.0.0.jar:/usr/local/kafka/bin/..../libs/kafka-streams-scala_2.11-2.0.0.jar:/usr/local/kafka/bin/..../libs/kafka-streams-test-utils-2.0.0.jar:/usr/local/kafka/bin/..../libs/kafka-tools-2.0.0.jar:/usr/local/kafka/bin/..../libs/log4j-1.2.17.jar:/usr/local/kafka/bin/..../libs/lz4-java-1.4.1.jar:/usr/local/kafka/bin/..../libs/maven-artifact-3.5.3.jar:/usr/local/kafka/bin/..../libs/metrics-core-2.2.0.jar:/usr/local/kafka/bin/..../libs/osgi-resource-locator-1.0.1.jar:/usr/local/kafka/bin/..../libs/plexus-utils-3.1.0.jar:/usr/local/kafka/bin/..../libs/reflections-0.9.11.jar:/usr/local/kafka/bin/..../libs/rocksdbjni-5.7.3.jar:/usr/local/kafka/bin/..../libs/scala-library-2.11.12.jar:/usr/local/kafka/bin/..../libs/scala-logging_2.11-3.9.0.jar:/usr/local/kafka/bin/..../libs/scala-reflect-2.11.12.jar:/usr/local/kafka/bin/..../libs/slf4j-api-1.7.25.jar:/usr/local/kafka/bin/..../libs/slf4j-log4j12-1.7.25.jar:/usr/local/kafka/bin/..../libs/snappy-java-1.1.7.1.jar:/usr/local/ka
```

ryan@Schrodinger: /usr/local/kafka

File Edit View Search Terminal Help

```
• Python 3      which means from beginning, or
'latest' which means from end
(default: latest)

--partition <Integer: partition> STEPS: The partition to consume from.
                                            Consumption starts from the end of
                                            the partition unless '--offset' is
                                            specified.

--property <String: prop> (All the following commands need to be executed on terminal)
                           The properties to initialize the
                           message formatter. Default
                           properties include:
                               print.timestamp=true|false
                               print.key=true|false
                               print.value=true|false
                               key.separator=<key.separator>
                               line.separator=<line.separator>
                               key.deserializer=<key.deserializer>
                               value.deserializer=<value.
                               deserializer>
                               $ bin/zookeeper-server-start.sh config/zookeeper.properties
                               Users can also pass in customized
                               properties for their formatter; more
                               specifically, users can pass in
                               properties keyed with 'key.
                               deserializer.' and 'value.
                               deserializer.' prefixes to configure
                               their deserializers.

STEP-1: Start zookeeper: $ bin/zookeeper-server-start.sh config/zookeeper.properties
STEP-2: Start kafka: $ bin/kafka-server-start.sh config/server.properties
STEP-3: Create kafka topic: $ bin/kafka-topic.sh --create --zookeeper localhost:2181 --topic twitterstream localhost:2181 --replications 1 --partitions 1
--skip-message-on-error If there is an error when processing a
message, skip it instead of halt.

--timeout-ms <Integer: timeout_ms> Start kafka consumer: $ bin/kafka-console-consumer.sh --zookeeper localhost:2181 --topic twitterstream --from-beginning
--topic <String: topic> $ bin/kafka-console-consumer.sh --zookeeper localhost:2181 --topic twitterstream --from-beginning
--value-deserializer <String:
deserializer for values>
--whitelist <String: whitelist> Whitelist of topics to include for
consumption.

$ bin/kafka-console-consumer.sh --bootstrap-server localhost:2181 --topic twitterstream --from-beginning
$ python kafka_file/stream_data.py
```



Activities Terminal ▾ Sun 23:39 •
ryan@Schrodinger: ~/IR-Complaint-Feedback-Management-System

```
.lz4_lz4-1.3.0.jar with timestamp 1582481336460 dinger ~
20/02/23 23:38:56 INFO Utils: Copying /home/ryan/.ivy2/jars/net.jpountz.lz4_lz4-1.3.0.jar to /tmp/spark-364d48fd-7348-4106-b960-6bfb9cd9c3c9/userFiles-e8ac5e0d-2d38-4e24-a081-9012724c9a9c/net.jpountz.lz4_lz4-1.3.0.jar
20/02/23 23:38:56 INFO SparkContext: Added file file:///home/ryan/.ivy2/jars/org.xerial.snappy_snappy-java-1.1.2.6.jar at file:///home/ryan/.ivy2/jars/org.xerial.snappy_snappy-java-1.1.2.6.jar with timestamp 1582481336478
20/02/23 23:38:56 INFO Utils: Copying /home/ryan/.ivy2/jars/org.xerial.snappy_snappy-java-1.1.2.6.jar to /tmp/spark-364d48fd-7348-4106-b960-6bfb9cd9c3c9/userFiles-e8ac5e0d-2d38-4e24-a081-9012724c9a9c/org.xerial.snappy_snappy-java-1.1.2.6.jar
20/02/23 23:38:56 INFO Executor: Starting executor ID driver on host localhost
20/02/23 23:38:56 INFO Utils: Successfully started service 'org.apache.spark.network.netty.NettyBlockTransferService' on port 35961.
20/02/23 23:38:56 INFO NettyBlockTransferService: Server created on 30.31.0.151:35961
20/02/23 23:38:56 INFO BlockManager: Using org.apache.spark.storage.RandomBlockReplicationPolicy for block replication policy
20/02/23 23:38:56 INFO BlockManagerMaster: Registering BlockManagerId(driver, 30.31.0.151, 35961, None)
20/02/23 23:38:56 INFO BlockManagerMasterEndpoint: Registering block manager 30.31.0.151:35961 with 366.3 MB RAM, BlockManagerId(driver, 30.31.0.151, 35961, None)
20/02/23 23:38:56 INFO BlockManagerMaster: Registered BlockManager BlockManagerId(driver, 30.31.0.151, 35961, None)
20/02/23 23:38:56 INFO BlockManager: Initialized BlockManager: BlockManagerId(driver, 30.31.0.151, 35961, None)
Processing data ...          STEP-7: Create database in MySQL as "twitter" and table with schema.
Empty RDD !!!
Processing data ...
[[{'@RailMinIndia': 'WesternRly', '@PiyushGoyal': 'sir booked a senior citizen ticket of tomorrow.', 'Pnr': '2755741205', 'How': 'ca\xe2\x80\x9a6', 'https': 't.co/F0Zp2sufWJ', 'u': 'ketan_bagrecha', '1231642119992942592, 0.0}]]
Database insertion SUCCESSFUL!!
Processing data ...
[[{'RT': 'RailMinIndia: 52 Km Bairabi-Sairang Rail line in Mizoram, slated completion by 2022, is inspected by CRB Shri V K Yadav.\n\nProject has 3\xe2\x80\x9a6', 'u': 'aksks213', '1231642142034059265, 0.0}, {'@RailMinIndia': '@drmlko25', 'It should be some refund for this type of waiting/late.\nTotal wasting time .', 'u': 'brijutwitt', '1231642144877662208, 0.0}]]
Database insertion SUCCESSFUL!
Database insertion SUCCESSFUL!!
Processing data ...
Empty RDD !!!          STEP-9: Finally open php_files/index.php file to interact with UI and manage tweets in real-time.
Processing data ...
[[{"@phanindra45": "@mumbairailusers", "@RailMinIndia": "sorry it's not a private run rail ways .kindly bear with us", "u": "shravan_THADANI", "1231642243397832705, 0.0}]]
Database insertion SUCCESSFUL!!
Processing data ...
Empty RDD !!!
```

Activities Text Editor • Sun 23:49 •

raw_data.txt
~/IR-Complaint-Feedback-Management-System/data

```
[{"text": "Please look into the matter @DrmAjmer", "id": 936823135726268416, "in_reply_to_status_id": 936823135726268416, "user": {"name": "Bhavin Shah", "screen_name": "sbhavin91183", "id": 936824197887619072}, "entities": {"user_mentions": [{"id": 212569336, "indices": [0, 13], "id_str": "212569336"}]}, "coordinates": null, "timestamp_ms": "1512191268785", "source": "<a href=\"http://twitter.com/rel=nofollow\">Twitter Web Client</a>", "in_reply_to_screen_name": "sbhavin91183", "id_str": "936824197887619072", "display_text_range": [28, 65], "retweet_count": 0, "in_reply_to_user_id": 212569336, "favorited": false, "user": {"follow_request_sent": null, "profile_use_background_image": true, "default_profile_image": false, "id": 3379962305, "default_profile": false, "verified": false, "profile_image_url_https": "https://pbs.twimg.com/profile_images/621931771433721858/t6y-H8sc_normal.jpg", "profile_sidebar_fill_color": "#000000", "profile_text_color": "#000000", "followers_count": 8546, "profile_sidebar_border_color": "#000000", "id_str": "3379962305", "profile_background_color": "#1A1B1F", "listed_count": 45, "profile_background_image_url_https": "https://abs.twimg.com/images/themes/theme9/bg.gif", "utc_offset": 19800, "statuses_count": 31525, "description": "Official Account of Divisional Railway Manager, Ahmedabad Division, Western Railway.", "friends_count": 4, "location": "Ahmedabad City, India", "profile_link_color": "#2FC2EF", "profile_image_url": "http://pbs.twimg.com/profile_images/621931771433721858/t6y-H8sc_normal.jpg", "following": null, "geo_enabled": true, "profile_background_image_url": "http://abs.twimg.com/images/themes/theme9/bg.gif", "name": "DRM Ahmedabad", "lang": "en", "profile_background_tile": true, "favourites_count": 106, "screen_name": "drmadiwr", "notifications": null, "url": "http://www.wr.indianrailways.gov.in/view_section.jsp?lang=0&id=0,5,574", "created_at": "Fri Jul 17 06:33:50 +0000 2015", "contributors_enabled": false, "time_zone": "Mumbai", "protected": false, "translator_type": "none", "is_translator": false, "geo": null, "in_reply_to_user_id_str": "212569336", "lang": "en", "created_at": "Sat Dec 02 05:07:48 +0000 2017", "filter_level": "low", "in_reply_to_status_id_str": "936823135726268416", "place": null}, "quote_count": 0, "contributors": null, "truncated": false, "entities": {"user_mentions": [{"id": 2602959463, "indices": [0, 13], "id_str": "2602959463"}]}, "coordinates": null, "timestamp_ms": "1512191268785", "source": "<a href=\"https://about.twitter.com/products/tweetdeck\" rel=nofollow>TweetDeck</a>", "in_reply_to_screen_name": "RailMinIndia", "id_str": "936824242649251841", "display_text_range": [41, 81], "retweet_count": 0, "in_reply_to_user_id": 2602959463, "favorited": false, "user": {"follow_request_sent": null, "profile_use_background_image": false, "default_profile_image": false, "id": 3282247526, "default_profile": false, "verified": false, "profile_image_url_https": "https://pbs.twimg.com/profile_images/915070577890672640/eEUD4ArU_normal.jpg", "profile_sidebar_fill_color": "#000000", "profile_text_color": "#000000", "followers_count": 16603, "profile_sidebar_border_color": "#000000", "id_str": "3282247526", "profile_background_color": "#000000", "listed_count": 46, "profile_background_image_url_https": "https://abs.twimg.com/images/themes/theme1/bg.png", "utc_offset": -28800, "statuses_count": 60437, "description": "The Official Twitter Account of Delhi Division, Northern Railway", "friends_count": 132, "location": "New Delhi, Delhi", "profile_link_color": "#3B94D9", "profile_image_url": "http://pbs.twimg.com/profile_images/915070577890672640/eEUD4ArU_normal.jpg", "following": null, "geo_enabled": true, "profile_banner_url": "https://pbs.twimg.com/profile_banners/3282247526/1507189260", "profile_background_image_url": "https://abs.twimg.com/images/themes/theme1/bg.png", "name": "Delhi Division, Northern Railway"}]
```

tweets_formatted_data.csv - LibreOffice Calc

File Edit View Insert Format Styles Sheet Data Tools Window Help



| | A | B |
|----|-----------|--|
| 26 | emergency | train is at halt for the last 4.5 hrs amidst of jungle, wt the fkk is happening??? pnr 4512791357 |
| 27 | emergency | pregnant lady needs the help of some lady doctor immediately, her pnr 4512791357 |
| 28 | emergency | charger points of the complete bogie malfunctioning, need immediate attention pnr 4512791357 |
| 29 | emergency | a sweeper supposed to be thief but the matter is out of the passengers ctrl pnr 4512791357 |
| 30 | emergency | window pane jammed #utter winter, bone freezing cold pnr 4512791357 |
| 31 | emergency | fan's speed not decreasing , we need help pnr 4512791357 |
| 32 | emergency | acs not working ,pnr 4512791357, tt not responding positivelt, what do we pay for |
| 33 | emergency | berth env is quite unhygenic, insects wandering here n there pnr 4512791357 |
| 34 | emergency | unremoved heavy bedrolls , stinky smell pnr 4512791357, emergency cleanup reqd |
| 35 | emergency | two copassengers fought brutally, 1 got a head injury.emergency!! His pnr 4512791357 |
| 36 | feedback | @SBKULAL @Bkugne @riyaj_ali @niraj1712 @FAZALALAM234 @phanipeddapall1 @ratneshthakur86 @railmitraa @drmned @drmgtl... https://t.co/ZxsjnoOQLd |
| 37 | emergency | @drmlko25 @RailMinIndia @RailwayNorthern Kindly send anyone railway staff to attend 14203 |
| 38 | emergency | @RailMinIndia plz continue train no 14307-14308 |
| 39 | feedback | RT @IndiaBTL: Why is @RailMinIndia procuring Congress mouthpiece National Herald (priced a hefty Rs. 20/piece) & #amp; |
| 40 | emergency | @RailMinIndia Dear Sir, my father is a senior citizen and is a patient too.Travelling alone and his seat is not confirmed but is having RAC. |
| 41 | feedback | @NitinSubudhi @RailMinIndia @PiyushGoyal 4 paise legally sahi daam pe bech ke bhi kamay jaa sakte hai. |
| 42 | feedback | @RailMinIndia @PiyushGoyal If a person buys ticket online and if its not confirmed then why that ticket is not a v... https://t.co/fgalcVcM6C |
| 43 | feedback | @RailMinIndia @drmnfr_Img @IR_ENHM till now no action has been taken |
| 44 | feedback | @RailMinIndia @pk_9451 In such cases what is the way out. Please suggest solutions |
| 45 | feedback | RT @carole_mortimer: #PNR #fantasy #BookBoost #IARTG #EARTG #ASMSG #IAN1 #mgtab #tw4rw #NewRelease DERYK (Dragon Hearts 2)... |
| 46 | feedback | @RailMinIndia @RailwayNorthern @PiyushGoyalOffc this winter no fog now a days, still so late trains. It looks staff... https://t.co/x0ATy1Fd28 |
| 47 | emergency | @RailMinIndia train no 12551 , b10,23 .here water is leaking from AC. Please do the needful. |
| 48 | emergency | @RailMinIndia Train has departed Varanasi and will be reaching Chunai in few minutes and then Mirzapur. |
| 49 | emergency | @RailMinIndia Thanks for the reply ..). PNR-4138201979. |
| 50 | feedback | RT @RailMinIndia: All commodities have registered robust growth with steel at 16%, cement 10%, containers 13%, iron ore 5% and coal 2... |
| 51 | emergency | @DRMbhopal @RailMinIndia @sanjaygupta2012 sorry for inconvenience ,matter noted to @OPTGBSL |
| 52 | emergency | @RailMinIndia please help. His PNR number is 2820176609 |
| 53 | feedback | Check out Thief Catcher on The Prolific Reader! #instafreebie #freebook #whattoread #pnr https://t.co/jB0Hts5o8J https://t.co/brSUrxmByu |
| 54 | emergency | #NTES National Train enquiry system is not updating #Mumbai Localtrain running info properly @Central_Railway... https://t.co/8C0robxMP9 |
| 55 | emergency | @ahamadalii222 Kindly share PNR number. Matter forwarded to the concerned officials @Drmdelhi @IR FDMFCHG @CRSF CHG NR |

tweets_formatted_data

Sheet 1 of 1

Default

English (India)

Average: ; Sum: 0

100%

ryan@Schrodinger: ~/IR-Complaint-Feedback-Management-System

```
ryan@Schrodinger:~$ cd IR-Complaint-Feedback-Management-System/
ryan@Schrodinger:~/IR-Complaint-Feedback-Management-System$ spark-submit train_model.py
20/02/23 23:37:55 WARN Utils: Your hostname, Schrodinger resolves to a loopback address: 127.0.1.1; using 30.31.0.151 instead (on interface wlo1)
20/02/23 23:37:55 WARN Utils: Set SPARK_LOCAL_IP if you need to bind to another address
20/02/23 23:37:56 WARN NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Using Spark's default log4j profile: org/apache/spark/log4j-defaults.properties
20/02/23 23:38:00 INFO SparkContext: Running Spark version 2.4.5
20/02/23 23:38:00 INFO SparkContext: Submitted application: IRApp
20/02/23 23:38:01 INFO SecurityManager: Changing view acls to: ryan
20/02/23 23:38:01 INFO SecurityManager: Changing modify acls to: ryan
20/02/23 23:38:01 INFO SecurityManager: Changing view acls groups to:
20/02/23 23:38:01 INFO SecurityManager: Changing modify acls groups to:
20/02/23 23:38:01 INFO SecurityManager: SecurityManager: authentication disabled; ui acls disabled; users with view permissions: Set(ryan); groups with view permissions: Set(); users with modify permissions: Set(ryan); groups with modify permissions: Set()
20/02/23 23:38:02 INFO Utils: Successfully started service 'sparkDriver' on port 46785.
20/02/23 23:38:02 INFO SparkEnv: Registering MapOutputTracker
20/02/23 23:38:02 INFO SparkEnv: Registering BlockManagerMaster
20/02/23 23:38:02 INFO BlockManagerMasterEndpoint: Using org.apache.spark.storage.DefaultTopologyMapper for getting topology information
20/02/23 23:38:02 INFO BlockManagerMasterEndpoint: BlockManagerMasterEndpoint up
20/02/23 23:38:03 INFO DiskBlockManager: Created local directory at /tmp/blockmgr-9f98458f-318d-4f5f-8349-60990941bc42
20/02/23 23:38:03 INFO MemoryStore: MemoryStore started with capacity 366.3 MB
20/02/23 23:38:03 INFO SparkEnv: Registering OutputCommitCoordinator
20/02/23 23:38:03 INFO Utils: Successfully started service 'SparkUI' on port 4040.
20/02/23 23:38:04 INFO SparkUI: Bound SparkUI to 0.0.0.0, and started at http://30.31.0.151:4040
20/02/23 23:38:04 INFO Executor: Starting executor ID driver on host localhost
20/02/23 23:38:04 INFO Utils: Successfully started service 'org.apache.spark.network.netty.NettyBlockTransferService' on port 43933.
20/02/23 23:38:04 INFO NettyBlockTransferService: Server created on 30.31.0.151:43933
20/02/23 23:38:04 INFO BlockManager: Using org.apache.spark.storage.RandomBlockReplicationPolicy for block replication policy
20/02/23 23:38:04 INFO BlockManagerMaster: Registering BlockManager BlockManagerId(driver, 30.31.0.151, 43933, None)
20/02/23 23:38:04 INFO BlockManagerMasterEndpoint: Registering block manager 30.31.0.151:43933 with 366.3 MB RAM, BlockManagerId(driver, 30.31.0.151, 43933, None)
20/02/23 23:38:04 INFO BlockManagerMaster: Registered BlockManager BlockManagerId(driver, 30.31.0.151, 43933, None)
20/02/23 23:38:04 INFO BlockManager: Initialized BlockManager: BlockManagerId(driver, 30.31.0.151, 43933, None)
20/02/23 23:38:06 INFO MemoryStore: Block broadcast_0 stored as values in memory (estimated size 236.7 KB, free 366.1 MB)
20/02/23 23:38:06 INFO MemoryStore: Block broadcast_0_piece0 stored as bytes in memory (estimated size 22.9 KB, free 366.0 MB)
20/02/23 23:38:06 INFO BlockManagerInfo: Added broadcast_0_piece0 in memory on 30.31.0.151:43933 (size: 22.9 KB, free: 366.3 MB)
20/02/23 23:38:06 INFO SparkContext: Created broadcast 0 from textFile at NativeMethodAccessorImpl.java:0
20/02/23 23:38:07 INFO FileInputFormat: Total input paths to process : 1
```

Activities Terminal ▾ Sun 23:38 ●

ryan@Schrodinger: ~/IR-Complaint-Feedback-Management-System

File Edit View Search Terminal Help

```
20/02/23 23:38:35 INFO Executor: Running task 74.0 in stage 21.0 (TID 211)
20/02/23 23:38:35 INFO ShuffleBlockFetcherIterator: Getting 0 non-empty blocks including 0 local blocks and 0 remote blocks
20/02/23 23:38:35 INFO ShuffleBlockFetcherIterator: Started 0 remote fetches in 0 ms
20/02/23 23:38:35 INFO Executor: Finished task 74.0 in stage 21.0 (TID 211). 3067 bytes result sent to driver
20/02/23 23:38:35 INFO TaskSetManager: Starting task 41.0 in stage 21.0 (TID 212, localhost, executor driver, partition 166, ANY, 7767 bytes)
20/02/23 23:38:35 INFO Executor: Running task 41.0 in stage 21.0 (TID 212)
20/02/23 23:38:35 INFO TaskSetManager: Finished task 74.0 in stage 21.0 (TID 211) in 6 ms on localhost (executor driver) (74/75)
20/02/23 23:38:35 INFO ShuffleBlockFetcherIterator: Getting 1 non-empty blocks including 1 local blocks and 0 remote blocks
20/02/23 23:38:35 INFO ShuffleBlockFetcherIterator: Started 0 remote fetches in 0 ms
20/02/23 23:38:35 INFO Executor: Finished task 41.0 in stage 21.0 (TID 212). 3108 bytes result sent to driver
20/02/23 23:38:35 INFO TaskSetManager: Finished task 41.0 in stage 21.0 (TID 212) in 9 ms on localhost (executor driver) (75/75)
20/02/23 23:38:35 INFO TaskSchedulerImpl: Removed TaskSet 21.0, whose tasks have all completed, from pool
20/02/23 23:38:35 INFO DAGScheduler: ResultStage 21 (showString at NativeMethodAccessorImpl.java:0) finished in 0.604 s
20/02/23 23:38:35 INFO DAGScheduler: Job 15 finished: showString at NativeMethodAccessorImpl.java:0, took 0.614131 s
+-----+
|label|prediction|count|
+-----+-----+-----+
| 1.0|     1.0|  215|
| 0.0|     1.0|   29|
| 1.0|     0.0|   36|
| 0.0|     0.0| 309|
+-----+-----+-----+
```

20/02/23 23:38:35 INFO SparkContext: Invoking stop() from shutdown hook
20/02/23 23:38:35 INFO SparkUI: Stopped Spark web UI at http://30.31.0.151:4040
20/02/23 23:38:35 INFO MapOutputTrackerMasterEndpoint: MapOutputTrackerMasterEndpoint stopped!
20/02/23 23:38:35 INFO MemoryStore: MemoryStore cleared
20/02/23 23:38:35 INFO BlockManager: BlockManager stopped
20/02/23 23:38:35 INFO BlockManagerMaster: BlockManagerMaster stopped
20/02/23 23:38:35 INFO OutputCommitCoordinator\$OutputCommitCoordinatorEndpoint: OutputCommitCoordinator stopped!
20/02/23 23:38:35 INFO SparkContext: Successfully stopped SparkContext
20/02/23 23:38:35 INFO ShutdownHookManager: Shutdown hook called
20/02/23 23:38:35 INFO ShutdownHookManager: Deleting directory /tmp/spark-acb8552c-d91d-454e-b77e-6b7658e543e7/pyspark-c5e76156-07b7-4ed1-82c9-8d9eded37c56
20/02/23 23:38:35 INFO ShutdownHookManager: Deleting directory /tmp/spark-25c12b65-7a19-4a85-823d-1d97e622fcfd
20/02/23 23:38:35 INFO ShutdownHookManager: Deleting directory /tmp/spark-acb8552c-d91d-454e-b77e-6b7658e543e7

ryan@Schrodinger: ~/IR-Complaint-Feedback-Management-System\$

Activities Terminal ▾ Sun 23:39 •
ryan@Schrodinger: ~/IR-Complaint-Feedback-Management-System

File Edit View Search Terminal Help

```
.lz4_lz4-1.3.0.jar with timestamp 1582481336460 dinger: ~
20/02/23 23:38:56 INFO Utils: Copying /home/ryan/.ivy2/jars/net.jpountz.lz4_lz4-1.3.0.jar to /tmp/spark-364d48fd-7348-4106-b960-6bfb9cd9c3c9/userFiles-e8ac5e0d-2d38-4e24-a081-9012724c9a9c/net.jpountz.lz4_lz4-1.3.0.jar
20/02/23 23:38:56 INFO SparkContext: Added file file:///home/ryan/.ivy2/jars/org.xerial.snappy_snappy-java-1.1.2.6.jar at file:///home/ryan/.ivy2/jars/org.xerial.snappy_snappy-java-1.1.2.6.jar with timestamp 1582481336478
20/02/23 23:38:56 INFO Utils: Copying /home/ryan/.ivy2/jars/org.xerial.snappy_snappy-java-1.1.2.6.jar to /tmp/spark-364d48fd-7348-4106-b960-6bfb9cd9c3c9/userFiles-e8ac5e0d-2d38-4e24-a081-9012724c9a9c/org.xerial.snappy_snappy-java-1.1.2.6.jar
20/02/23 23:38:56 INFO Executor: Starting executor ID driver on host localhost
20/02/23 23:38:56 INFO Utils: Successfully started service 'org.apache.spark.network.netty.NettyBlockTransferService' on port 35961.
20/02/23 23:38:56 INFO NettyBlockTransferService: Server created on 30.31.0.151:35961
20/02/23 23:38:56 INFO BlockManager: Using org.apache.spark.storage.RandomBlockReplicationPolicy for block replication policy
20/02/23 23:38:56 INFO BlockManagerMaster: Registering BlockManager BlockManagerId(driver, 30.31.0.151, 35961, None)
20/02/23 23:38:56 INFO BlockManagerMasterEndpoint: Registering block manager 30.31.0.151:35961 with 366.3 MB RAM, BlockManagerId(driver, 30.31.0.151, 35961, None)
20/02/23 23:38:56 INFO BlockManagerMaster: Registered BlockManager BlockManagerId(driver, 30.31.0.151, 35961, None)
20/02/23 23:38:56 INFO BlockManager: Initialized BlockManager: BlockManagerId(driver, 30.31.0.151, 35961, None)
Processing data ...          STEP-7: Create database in MySQL as "twitter" and table with schema.
Empty RDD !!!
Processing data ...
[[ '@RailMinIndia @WesternRly sir booked a senior citizen ticket of tomorrow. Pnr no. 2755741205. How ca\xe2\x80\xa6 https://t.co/F0Zp2sufWJ', u'ketan_bagrecha', 1231642119992942592, 0.0]]
Database insertion SUCCESSFUL!
Processing data ...
[['RT @RailMinIndia: 52 Km Bairabi-Sairang Rail line in Mizoram, slated completion by 2022, is inspected by CRB Shri V K Yadav.\n\nProject has 3\xe2\x80\xxa6', u'akksks213', 1231642142034059265, 0.0], ['@RailMinIndia @drmlko25 It should be some refund for this type of waiting/late.\nTotal wasting time .', u'brijutwitt', 1231642144877662208, 0.0]]
Database insertion SUCCESSFUL!
Database insertion SUCCESSFUL!
Processing data ...
Empty RDD !!!          STEP-9: Finally open php_files/index.php file to interact with UI and manage tweets in real-time.
Processing data ...
[["@phanindra45 @mumbairailusers @RailMinIndia sorry it's not a private run rail ways .kindly bear with us", u'shravan_THADANI', 1231642243397832705, 0.0]]
Database insertion SUCCESSFUL!
Processing data ...
Empty RDD !!!
```

Activities Terminal ▾ Sun 23:42 ●
ryan@Schrodinger: ~

File Edit View Search Terminal Help

```
mysql> select * from tweets;
+----+
+-----+-----+-----+-----+
| id | tweet
+-----+-----+-----+-----+
| username | pnr | prediction | tweet_id | response_status |
+-----+-----+-----+-----+
| biren | 0 | 0 | 1231551912870178816 | NULL |
+-----+-----+-----+-----+
| 1 | RT @NBirenSingh: Congratulate all the concerned officials and engineers of the @RailMinIndia for their skills and untiring efforts compleâ€!
| rupeshimphal | 0 | 0 | 123155227791134720 | NULL |
| 2 | RT @RailMinIndia: Shri V K Yadav, Chairman Railway Board inspected 110 Km Jiribam-Imphal Rail line project.
It is costing Rs 12524 cr withâ€!
| KumaSinghai | 0 | 0 | 123155227791134720 | NULL |
| 3 | @PiyushGoyal @RailMinIndia mr.goyal was to travel in the same train today(at the eleventh hour plan changed). I wâ€! https://t.co/po1eH1tZN9
| gudusurolia | 0 | 0 | 1231552260968071168 | NULL |
| 4 | RT @krjkishore: @RailMinIndia I have a journey today & yesterday got info from other sources that the train is cancelled but no official PN
â€!
| KumaSinghai | 0 | 0 | 1231552378064687105 | NULL |
| 5 | RT @joytuli2012: @RailMinIndia @PiyushGoyal @SureshAngadi_ Its good, in fact very happy to see, but think something about our Barak valley,â€!
| KumaSinghai | 0 | 1 | 1231552496046239744 | NULL |
| 6 | @drmubl @PiyushGoyal @RailMinIndia @PMOIndia Sorry Sir, your information is wrong, today the ticket counter stops â€! https://t.co/yNts07289M
```

Mobile App

- There are Mainly three sub-modules present:
 1. Authentication Module
 2. Notification Module
 3. Dashboard Module

Admin Login

Username

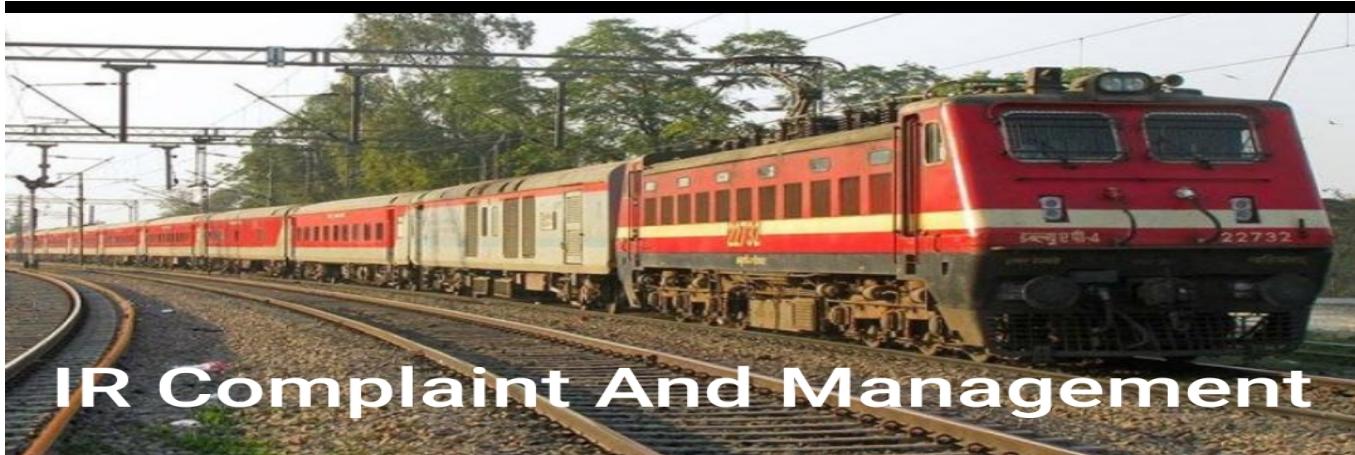
vhvv

Password

.....|

LOG IN





IR Complaint And Management

Emergency

Feedback

@drmUBL @PiyushGoyal @RailMinIndia
@PMOIndia Sorry Sir, your information
is wrong, today the ticket counter stops
a... <https://t.co/yNtsO7289M>

RT @joytuli2012: @RailMinIndia
@PiyushGoyal @SureshAngadi_ Its
good, in fact very happy to see, but think
something about our Barak valley,...



IR Complaint And Management

Emergency

Feedback

RT @tulsikumar24: @RailMinIndia
@PiyushGoyal @SureshAngadi_ Thank
you very much for such extraordinary
railway line.. Pls start a direct ex...

RT @Shivam7692: @RailMinIndia
@PiyushGoyal @SureshAngadi_ Dear sir
we are travelling in train number 12975
and pnr number 4723292155 and m...

@RailwaySeva Very Funny!
@RailMinIndia @WesternRly lodged a
online complain on Rail_Madad and
issued a complain no...
<https://t.co/6UGZhGCdZr>

@drmsambalpur @eastcoastrail
@RailMinIndia Why is train 20810 stuck
at Titilagarh station since more than an
hour? <https://t.co/2RHMvpXGHW>



Send Response to Passenger

Current Tweet

@drmUBL @PiyushGoyal @RailMinIndia
@PMOIndia Sorry Sir, your information
is wrong, today the ticket counter
stops a... <https://t.co/yNtsO7289M>

Your Response:

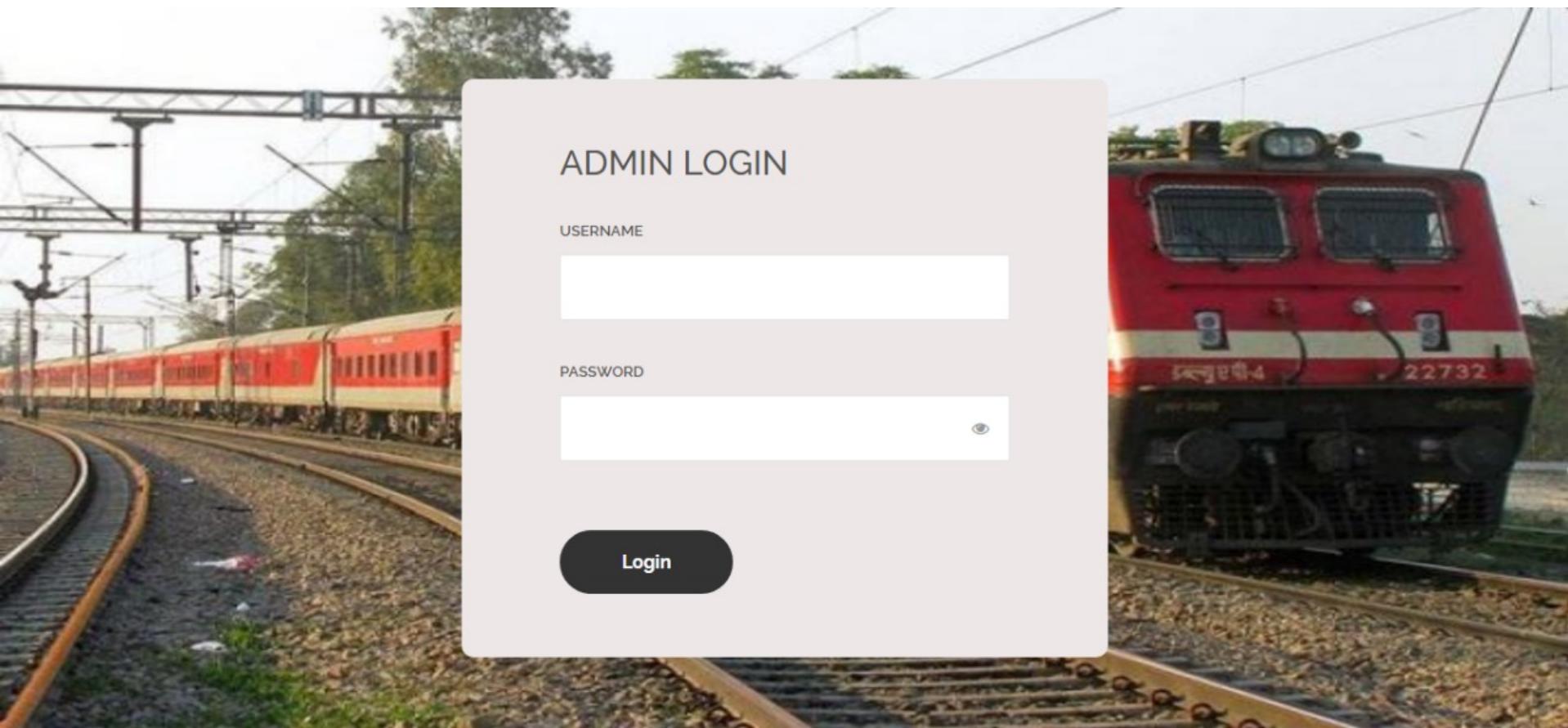
this is a sample response which is
being typed and shown
simultaneously.

i is being typed and shown simultaneously. |

Send Tweet

Web App Module

- There are Mainly six sub-modules present:
 1. Authentication Module
 2. Core Module
 3. Shared Module
 4. Notification Module
 5. Admin Module
 6. Dashboard Module



ADMIN LOGIN

USERNAME

PASSWORD

 •

Login

Emergency Feedback Tweets Analysis

@RailwaySeva @RailMinIndia @PiyushGoyalOffc thanks for the support. But the technician was very rude and was saying... <https://t.co/5pCluq4vnI>

Reply

@drmbct kind action please

Reply

RT @RailMinIndia: Solar Water Cooler installed at CSMT,Asangaon,Roha,Apta, Pen,Neral,Lonavala & Talegaon stations of Mumbai/Pune div. Zero...

Reply

RT @RAILYATRIDZB: Rail ministry only listen to rajasthan MP. Letters of haryana MP are thrown in dustbin. Dungergarh is imp then once asia...

Reply

Closing ceremony of 20th All India Police Band Competition, in Secunderabad #Police #Band #Competition #Music... <https://t.co/V96QkPsCBS>

Reply

RT @RailMinIndia: New Delhi - Varanasi the first semi high speed train set of India "Vande Bharat" express completed first successful year...

Reply

@RailwaySeva @RailMinIndia @PiyushGoyalOffc thanks for the support. But the technician was very rude and was saying... <https://t.co/5pCluq4vnI>

Type your response...

Reply

Closing ceremony of 20th All India Police Band Competition, in Secunderabad
#Police #Band #Competition #Music... <https://t.co/LJS9ixGDgX>

[Reply](#)

Does this train exist?This train didn't come on Shegaon platform but its showing running forward.on which railway t... <https://t.co/e5hlkgMvjD>

[Reply](#)

@RailMinIndia TTE took Rs.500 and allowed 4 passengers with general ticket to accomodate in sleeper coach. He didnt... <https://t.co/0VbTtPOv1K>

[Reply](#)

@PiyushGoyal @RailMinIndia there ris no use of booking when people travel without tickets and we book tickets in advance.

[Reply](#)

@Yeppi2105 @ShobhaBJP @BJP4India @narendramodi @AmitShah @JPNadda @BJP4Karnataka @amritabhinder @MeenaDasNarayan...
<https://t.co/g1WcsLqmoL>

[Reply](#)

@IRCTCofficial @SureshAngadi_ @SWRRLY @SW_Help @drmsbc @SureshAngadi_ @RailMinIndia @HospetRailUsers @GMSWR @drmubl...
<https://t.co/VC8PpFcNtW>

[Reply](#)

Does this train exist?This train didn't come on Shegaon platform but its showing running forward.on which railway t... <https://t.co/e5hlkgMvjD>

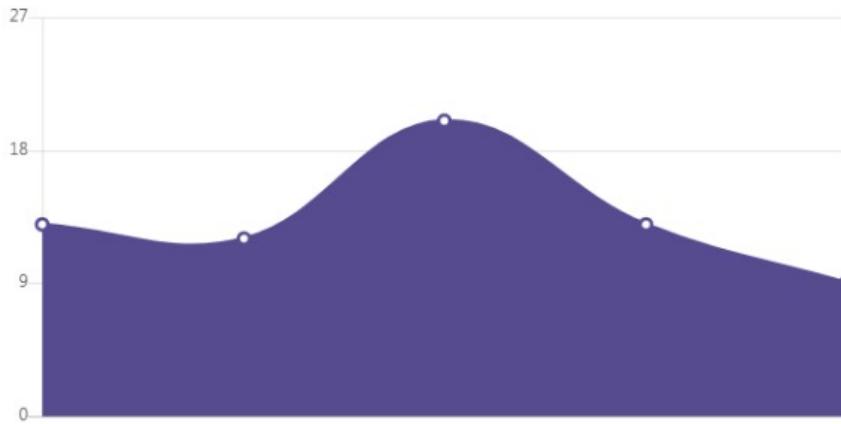
Type your response...

[Reply](#)

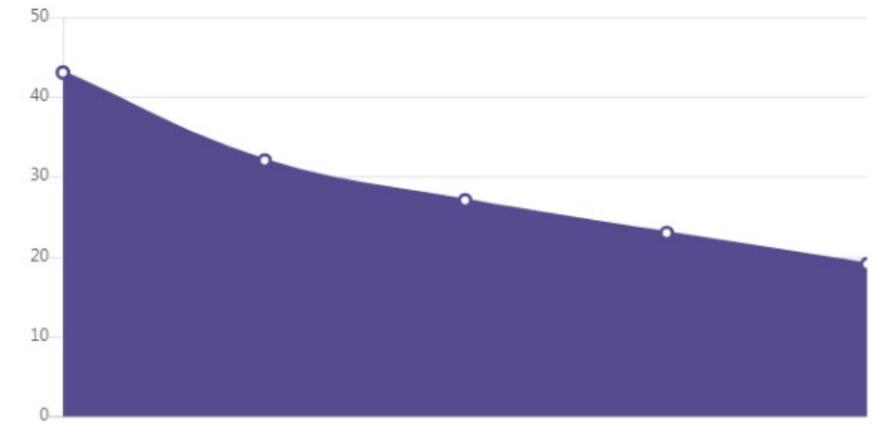
Tweets Analysis

Back

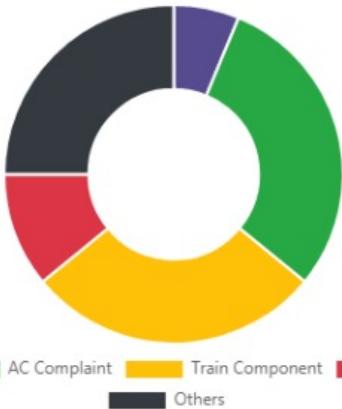
EMERGENCY TWEETS CHART (MONTHLY BASIS)



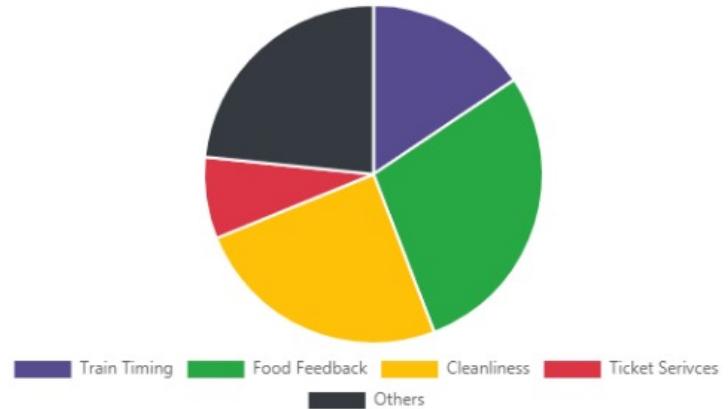
FEEDBACK TWEETS CHART (MONTHLY BASIS)



EMERGENCY TWEETS CATEGORIZATION



FEEDBACK TWEETS CATEGORIZATION



Deployment on Cloud

- **Amazon Elastic Compute Cloud** (Amazon EC2) is a web service that provides secure, resizable compute capacity in the cloud. It is designed to make web-scale cloud computing easier for developers.
- Amazon EC2 presents a true virtual computing environment, allowing you to use web service interfaces to launch instances with a variety of operating systems, load them with your custom application environment, manage your network's access permissions, and run your image using as many or few systems as you desire.

 New EC2 Experience
Tell us what you think

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Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts [New](#)

Capacity Reservations

▼ IMAGES

AMIs

Bundle Tasks

| Filter by tags and attributes or search by keyword | | | | | | | | | |
|---|----------------|---------------------|---------------|-------------------|---|--|--------------|---|---|
| | Name | Instance ID | Instance Type | Availability Zone | Instance State | Status Checks | Alarm Status | Public DNS (IPv4) | |
|  | Hadoop-data... | i-0d669a44e342dc6b7 | t2.micro | us-east-2c |  running |  Initializing | None |  ec2-13-58-120-14.us-e... | 1 |
|  | Hadoop-data... | i-0e069ca77f8940b0b | t2.micro | us-east-2c |  running |  Initializing | None |  ec2-52-15-237-141.us... | 5 |
|  | Hadoop-Na... | i-0c396735b989b9946 | t2.medium | us-east-2c |  running |  Initializing | None |  ec2-13-59-14-143.us-e... | 1 |
|  | Xampp | i-08ce20d76f69557ef | t2.micro | us-east-2c |  running |  Initializing | None |  ec2-3-17-23-49.us-east... | 3 |

Instances:  i-0d669a44e342dc6b7 (Hadoop-datanode1),  i-0e069ca77f8940b0b (Hadoop-datanode2),  i-0c396735b989b9946 (Hadoop-Namenode),  i-08ce20d76f69557ef (Xampp)   

Description

Status Checks

Monitoring

Tags

- i-0d669a44e342dc6b7: ec2-13-58-120-14.us-east-2.compute.amazonaws.com
- i-0e069ca77f8940b0b: ec2-52-15-237-141.us-east-2.compute.amazonaws.com
- i-0c396735b989b9946: ec2-13-59-14-143.us-east-2.compute.amazonaws.com
- i-08ce20d76f69557ef: ec2-3-17-23-49.us-east-2.compute.amazonaws.com

- **Amazon Relational Database Service** (Amazon RDS) makes it easy to set up, operate, and scale a relational database in the cloud.
- It provides cost-efficient and resizable capacity while automating time-consuming administration tasks .
- It frees you to focus on your applications so you can give them the fast performance, high availability, security and compatibility they need.
- Amazon RDS makes it easy to use replication to enhance availability and reliability for production workloads

database-1

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Summary

| | | | |
|---------------|------------------|-------------------------|-------------|
| DB Identifier | CPU | Info | Class |
| database-1 | - | Stopped | db.t2.micro |
| Role | Current activity | Engine | Region & AZ |
| Instance | | MySQL Community | us-east-2c |

[Connectivity & security](#)[Monitoring](#)[Logs & events](#)[Configuration](#)[Maintenance & backups](#)[Tags](#)

Connectivity & security

Endpoint & port

Endpoint
database-1.ctrbpvenwknx.us-east-2.rds.amazonaws.com

Networking

Availability zone
us-east-2c

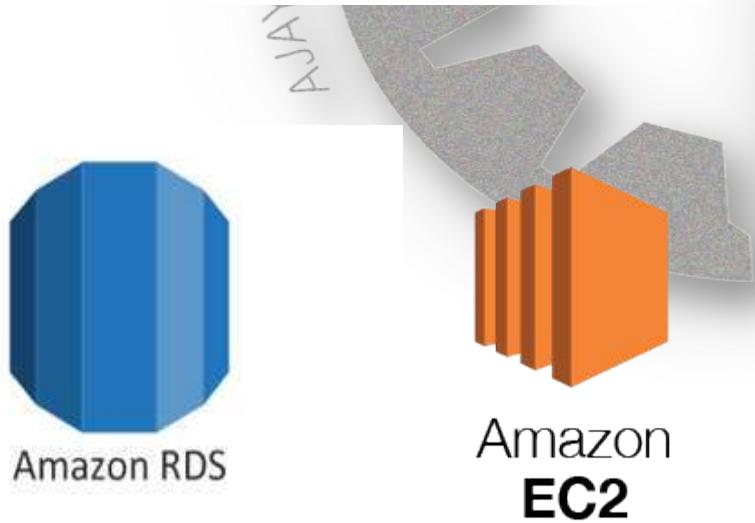
Security

VPC security groups
[default \(sg-8c3bd7f4\) \(active\)](#)

S/W, H/W REQUIREMENTS

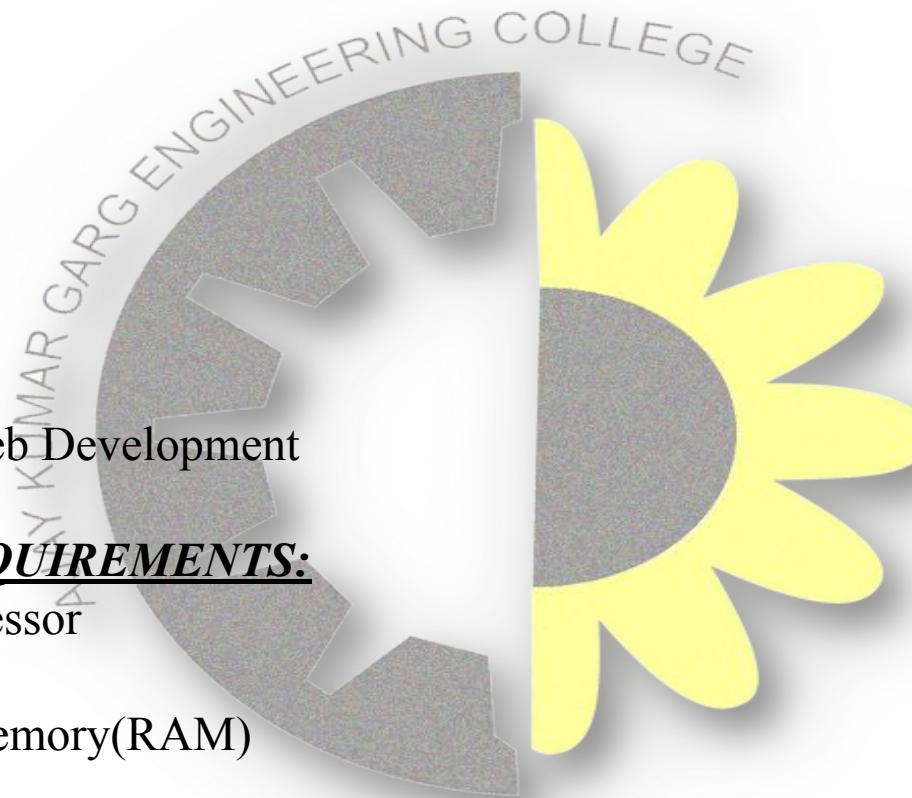
AJAY KUMAR
GARG ENGINEERING COLLEGE

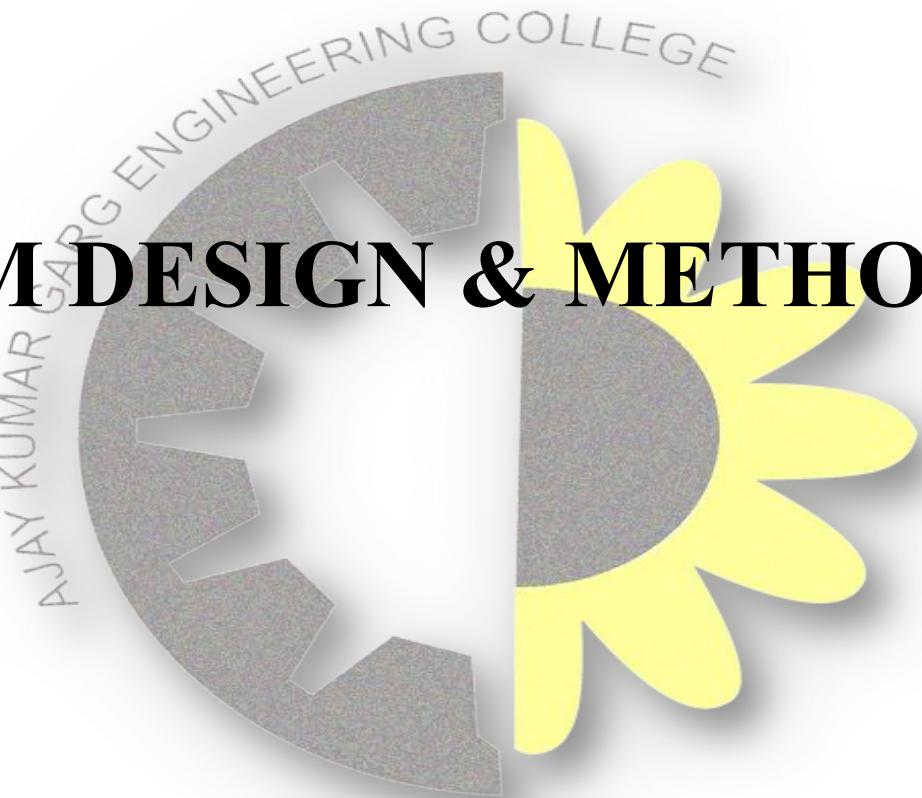




SOFTWARE REQUIREMENTS:

- MySQL essentials(server), MySQL Workbench
 - Microsoft Word 2010/2013/2018
 - Microsoft PowerPoint 2010/2013/2018
 - Android Studio
 - Jupyter Notebook
 - Apache Spark
 - WebStorm for Web Development
- ## **HARDWARE REQUIREMENTS:**
- 2.7GHz x86 processor
 - 4GB of system memory(RAM)
 - 512GB of hard-drive space
 - Keyboard/Mouse for data input
 - Monitor to display output



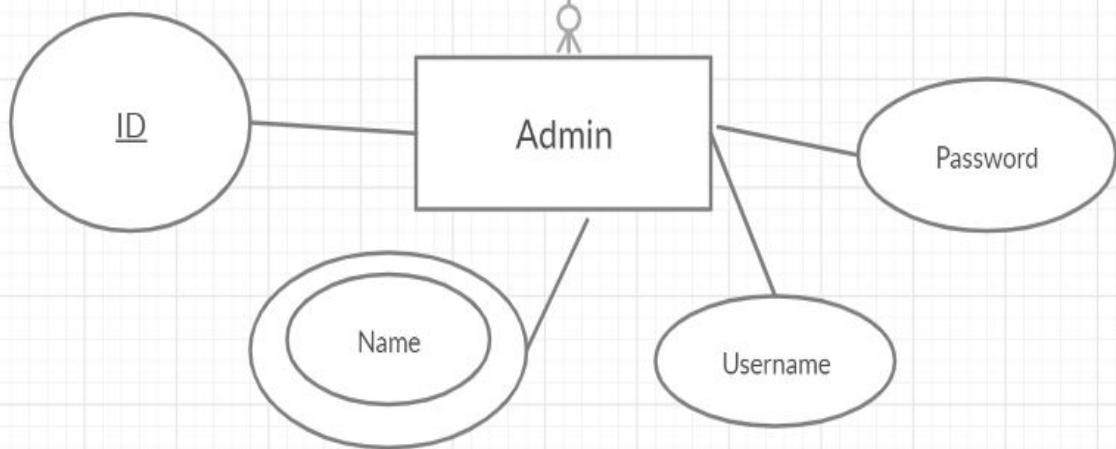
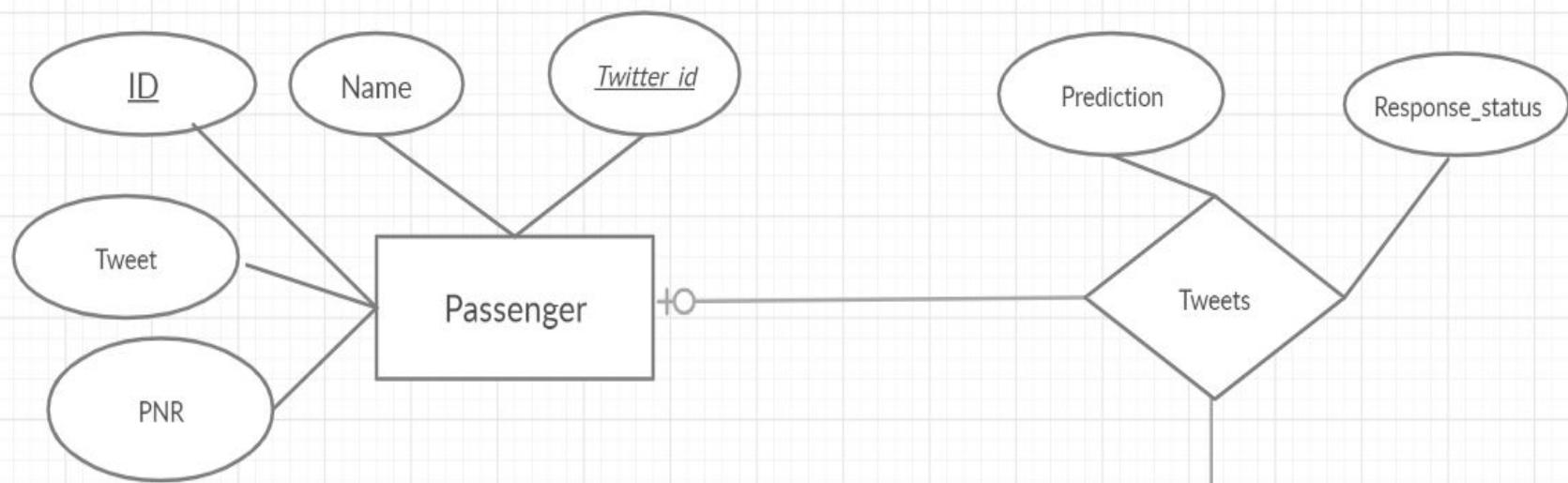


SYSTEM DESIGN & METHODOLOGY

AJAY KUMAR GARG ENGINEERING COLLEGE

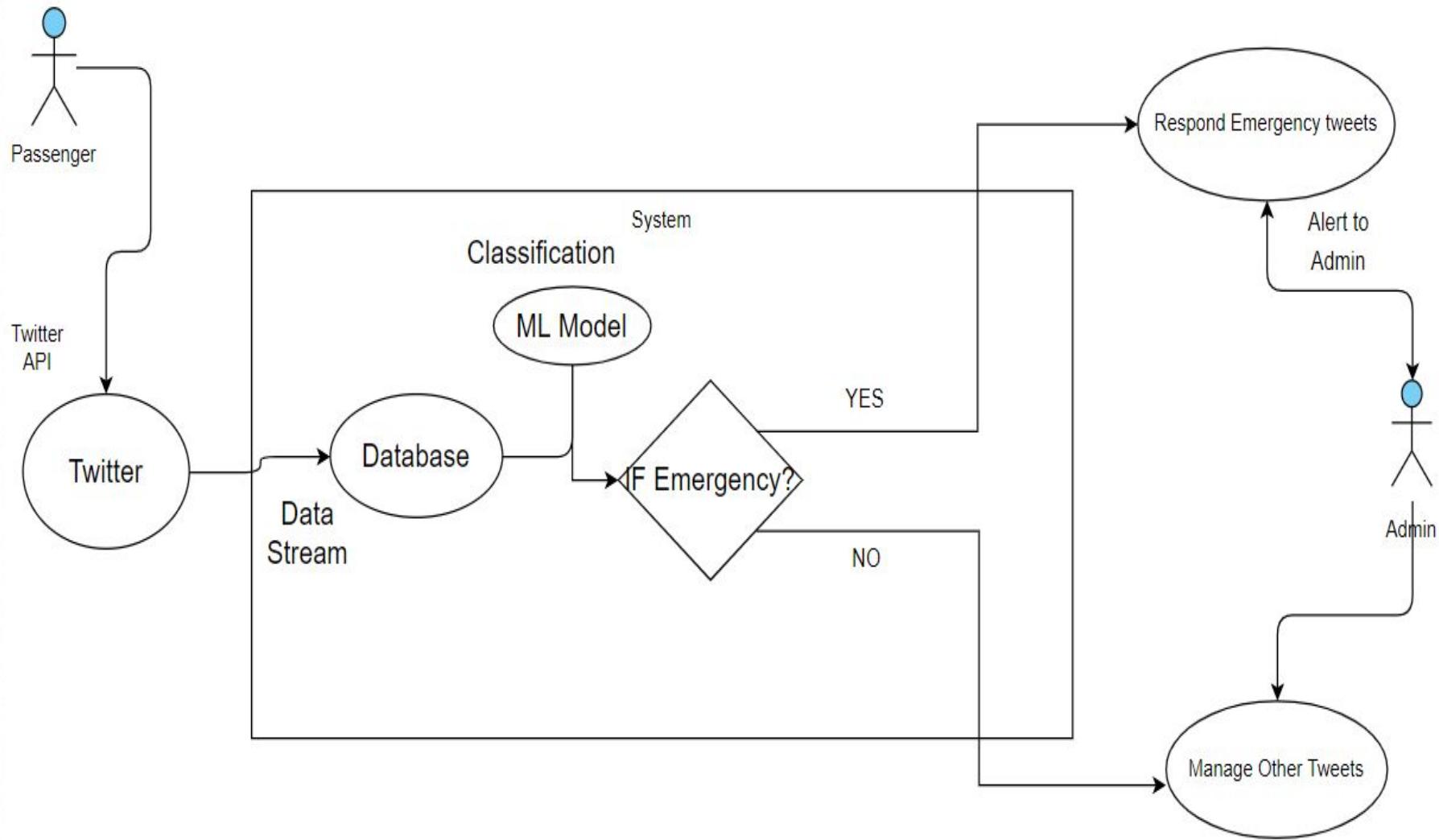
ER DIAGRAM

- An entity-relationship diagram is a data modelling technique that graphically illustrates an information system's entities and the relationships between those entities



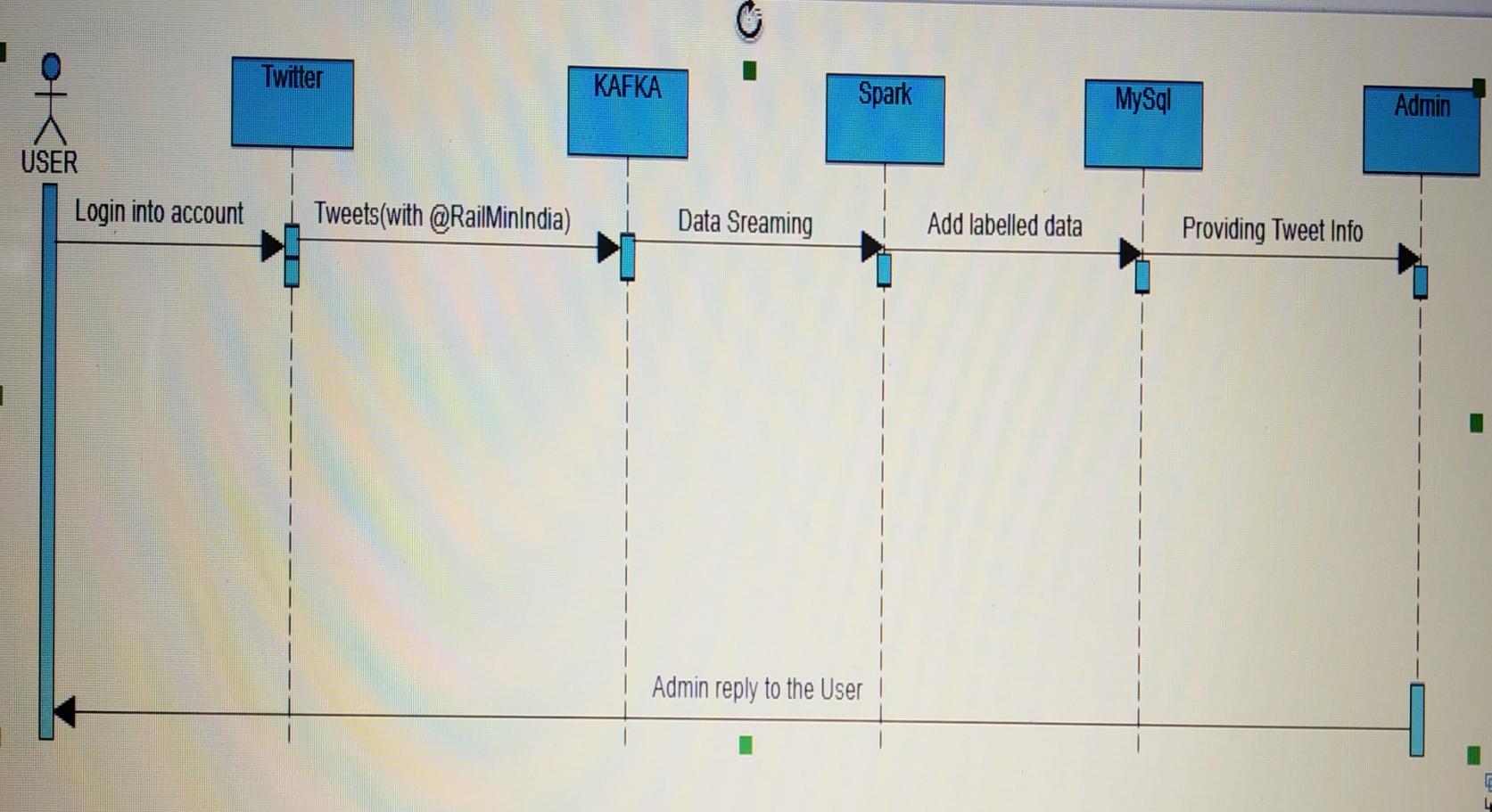
Use Case Diagram

- A use case is a methodology used in system analysis to identify, clarify, and organize system requirements.
Simplest representation of a user's interaction that shows the relationship between the user and the different use cases in which user involved



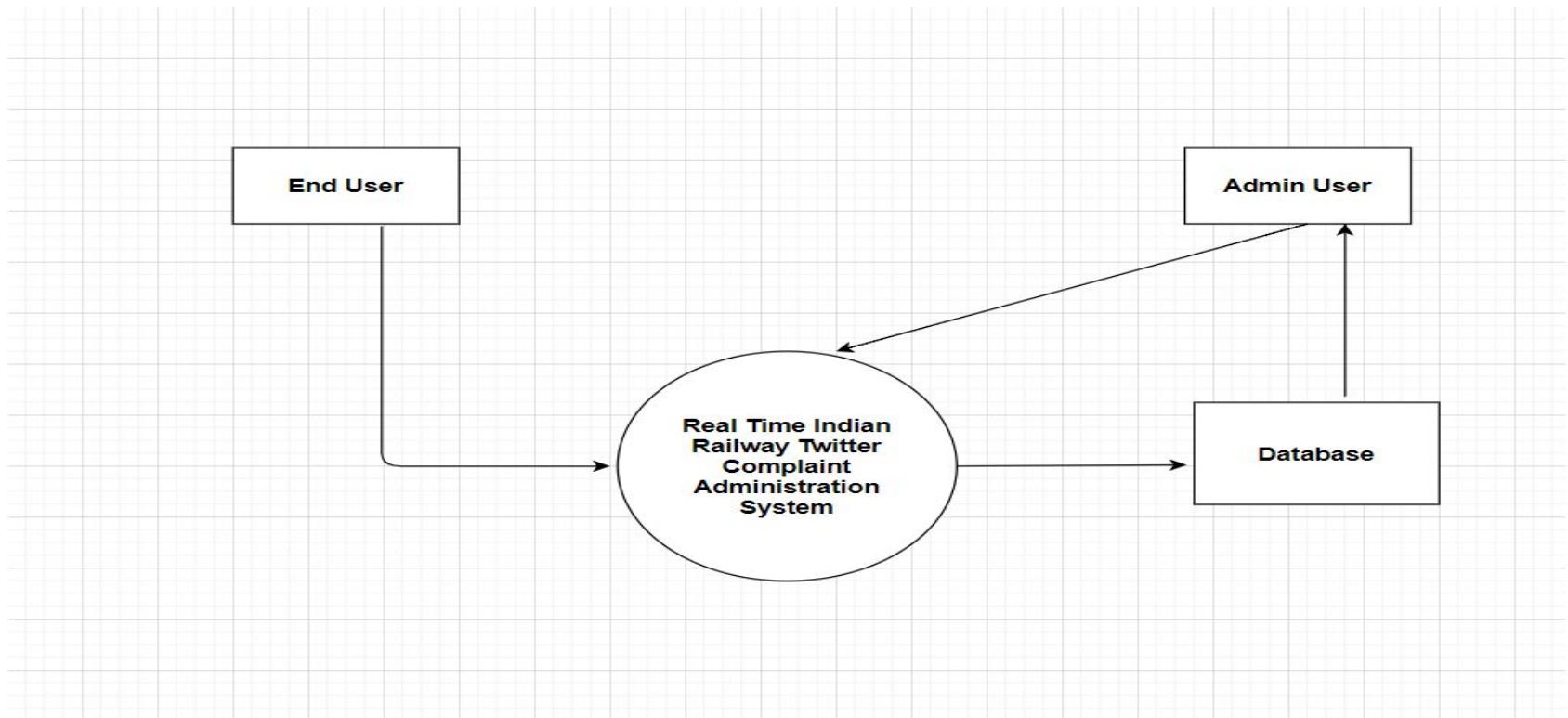
Sequence Diagram

- A sequence diagram simply depicts interaction between objects in a sequential order i.e. the order in which these interactions take place.
- Sequence diagrams describe how and in what order the objects are in a system function.

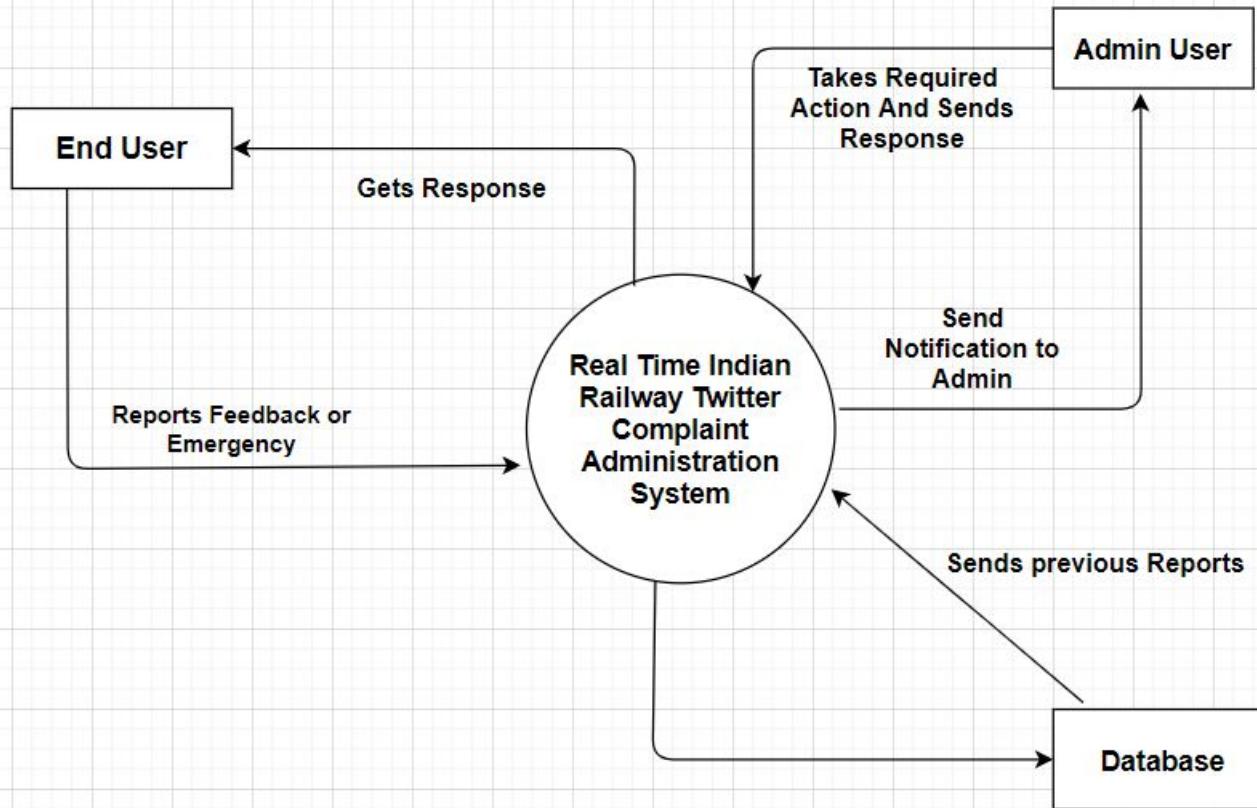


Data Flow Diagram

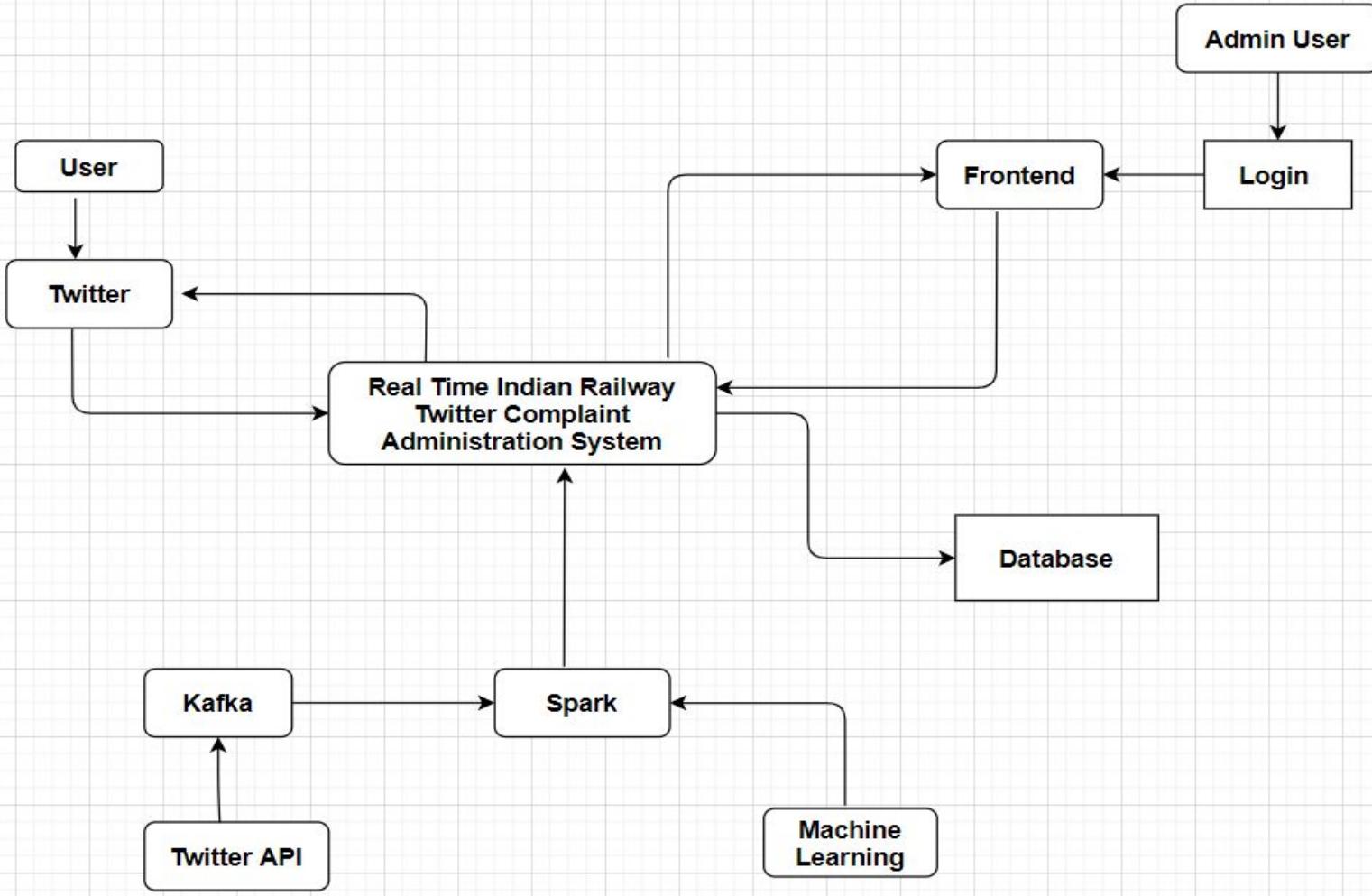
- Level 0 DFD



- Level 1 DFD

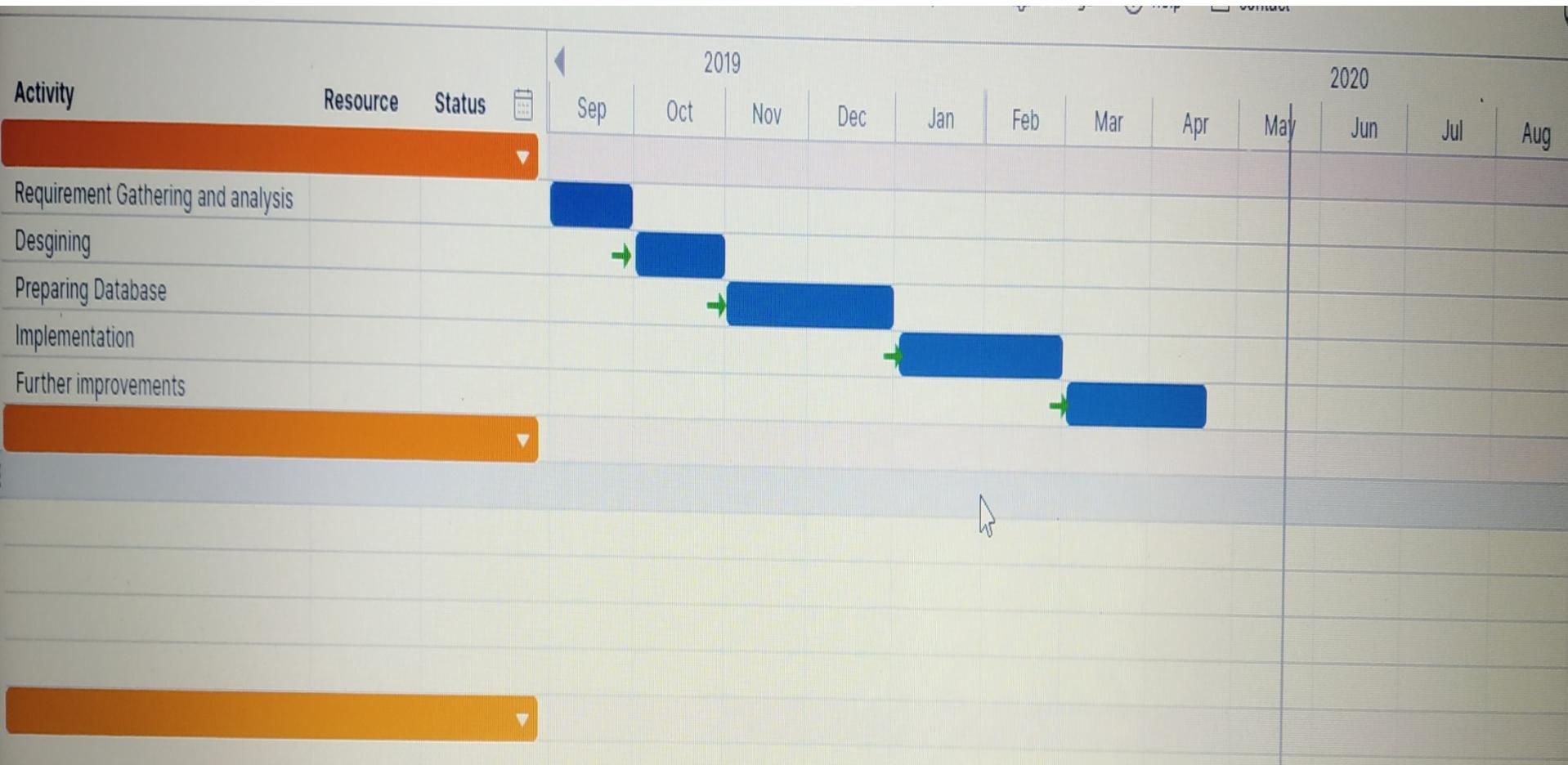


Level 2 DFD



Gantt Chart

- Gantt chart is a visual view of tasks scheduled over time. Gantt charts are used for planning projects of all sizes and they are a useful way of showing what work is scheduled to be done on a specific day.
- This chart lists the tasks to be performed on the vertical axis, and time intervals on the horizontal axis. The width of the horizontal bars in the graph shows the duration of each activity.
- Gantt charts illustrate the start and finish dates of the terminal elements and summary elements of a project.



Thank You