CPSC 471 Database Management Systems

Initial Functional Design

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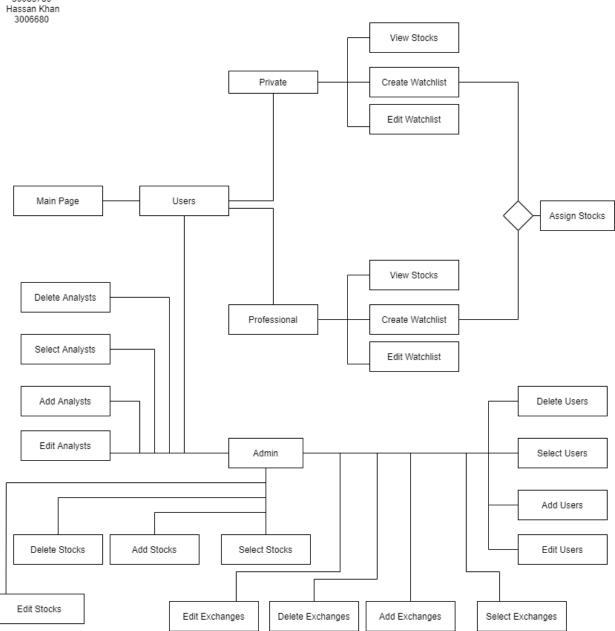
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HIPO Diagram:

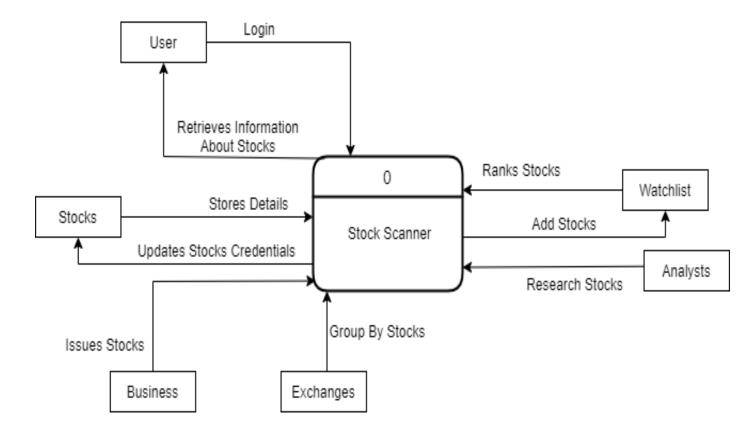
Group Number: 21

Names: Laura Timm 30064647 Abhay Khosla 30085789 Hassan Khan



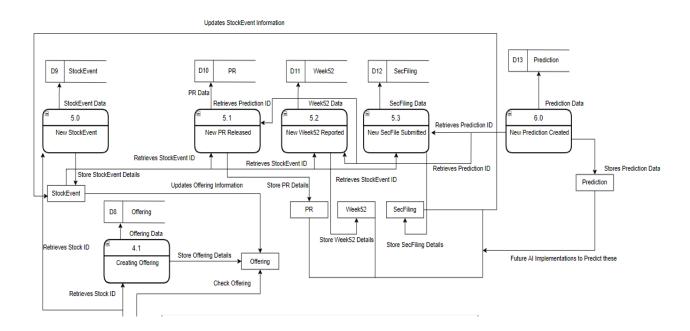
Not including the input-process-output diagram since it's optional

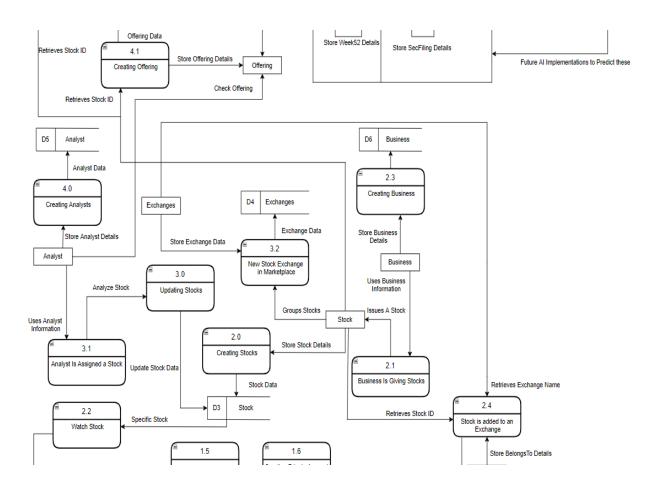
Context Diagram:

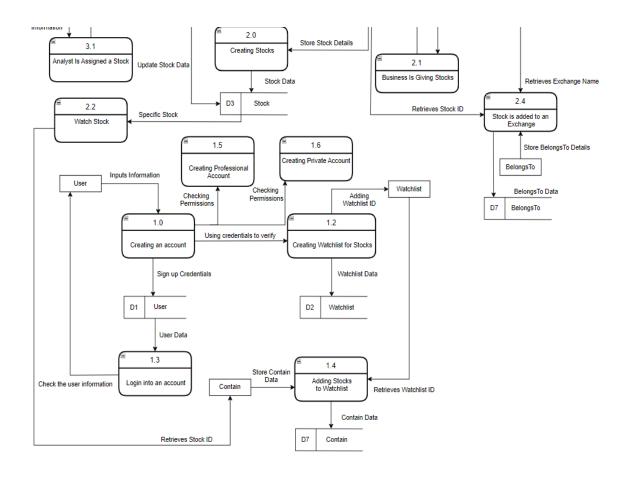


Data Flow Diagram:

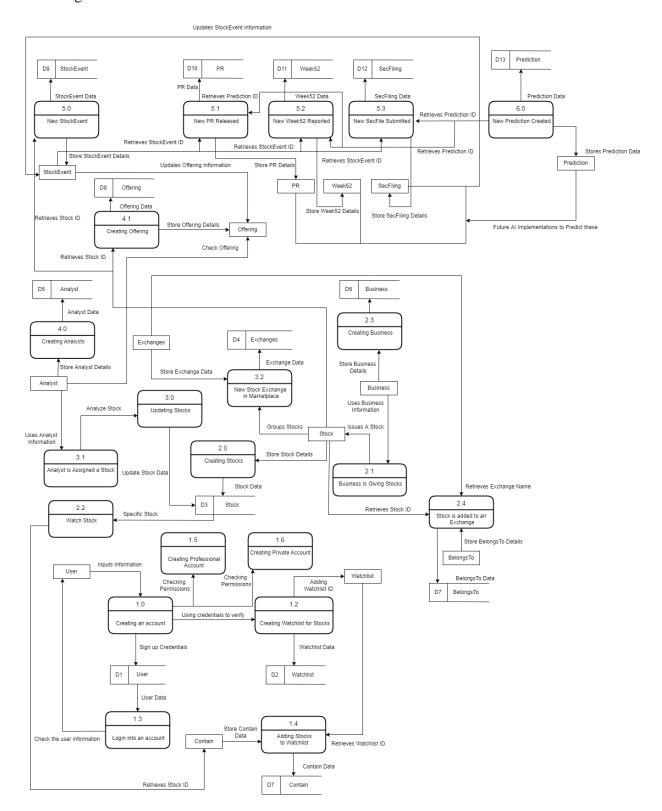
Broken Down components for better viewing:





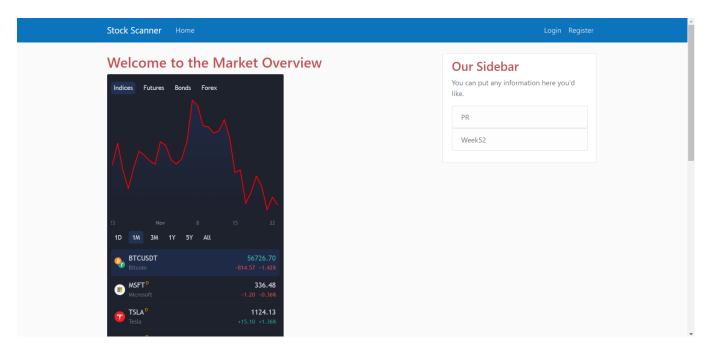


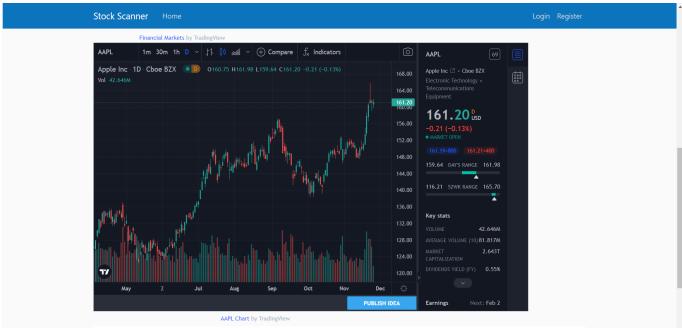
One Image:

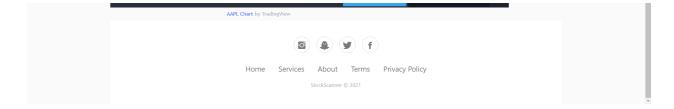


Dummy Website:

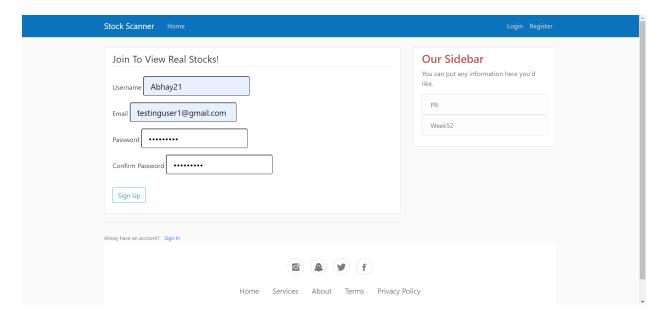
Landing(Home) Page:



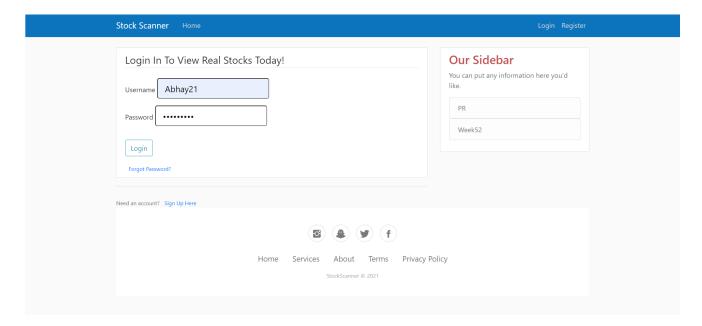




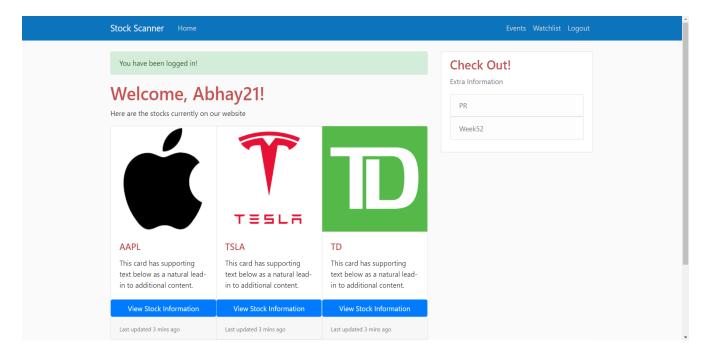
Register Page:



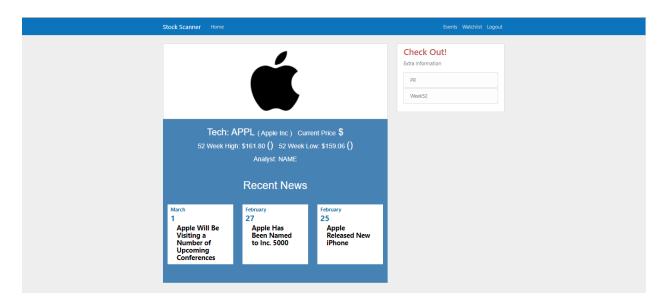
Login Page:



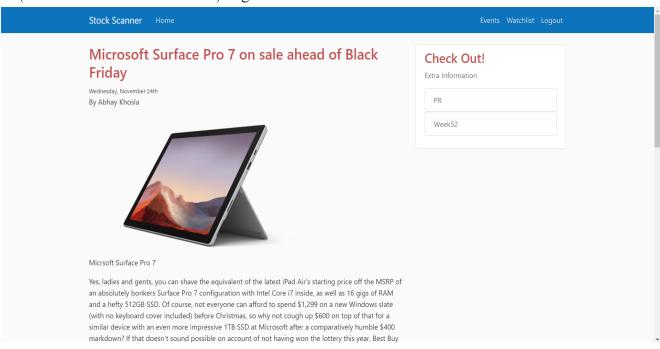
After Logging In:



Once you click on Stock Information:



PR(News/Headlines of the Stocks) Page:



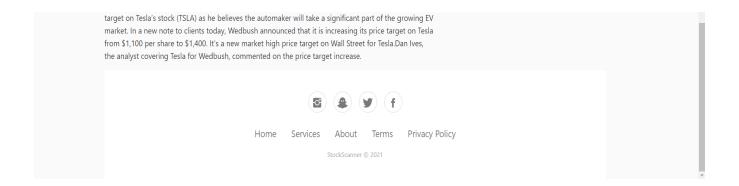
Tesla (TSLA) is in a position to grab \$2.5 trillion of EV market, says top analyst

Wednesday, November 24th By Abhay Khosla

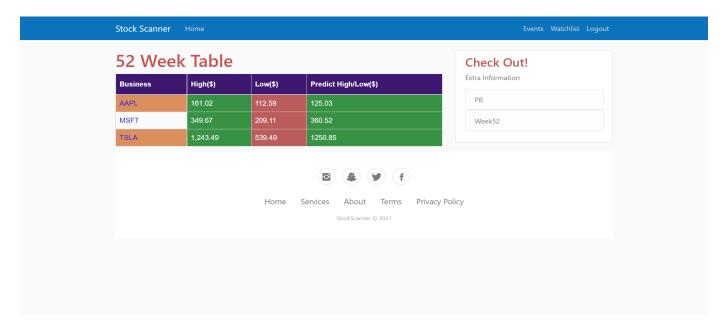


Tesla Sedan Model

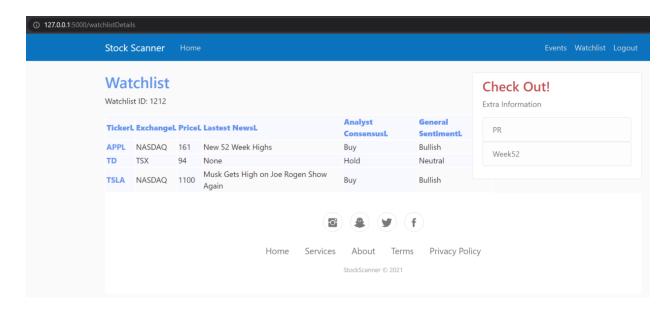
Dan Ives from Wedbush, one of the top 10 ranked stock analysts in the world, has increased his price target on Tesla's stock (TSLA) as he believes the automaker will take a significant part of the growing EV



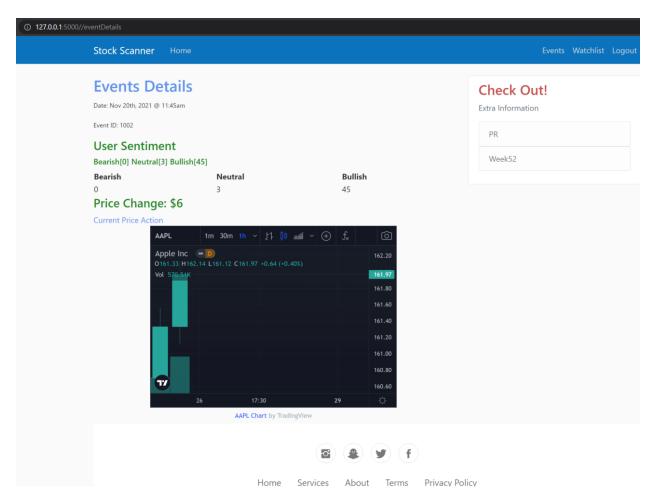
Week52Page:



Watchlist:



Event Details:



API Blueprint:

```
Endpoint 1:
```

```
Description: Creating new Business.
URL: http://127.0.0.1:5000/business
Method: POST
Input(JSON format):
  "Business_ID": "TD",
  "Address": "1234 Toronto",
  "Founding_Date": "1855-01-01",
  "Business Name": "TD Canada Trust"
Output: "Business updated successfully"
Endpoint 2:
Description: Get all Businesses.
URL: http://127.0.0.1:5000/business
Method: GET
Input: None
Output(JSON format):
 "Business": [
   "AAPL",
   "1234 California Road",
   "Sun, 04 Jan 1976 00:00:00 GMT",
   "Apple"
  ],
   "TD",
   "1234 Toronto",
   "Mon, 01 Jan 1855 00:00:00 GMT",
   "TD Canada Trust"
Endpoint 3:
Description: Updating the Business.
URL: http://127.0.0.1:5000/business
Method: PUT
Input(JSON format):
```

```
"Business ID": "TD",
 "Address": "1234 Toronto",
 "Founding Date": "1855-03-01",
 "Business Name": "TD Canada Trust"
Output: "Business updated successfully"
Endpoint 4:
Description: Get the Business by it's ID.
URL: http://127.0.0.1:5000/business/Business ID
Method: GET
Input: Business ID
Output(JSON format):
 "Business": [
   "TD",
   "1234 Toronto",
   "Mon, 01 Jan 1855 00:00:00 GMT",
   "TD Canada Trust"
]
Endpoint 5:
Description: Deleting the Business by it's ID.
URL: http://127.0.0.1:5000/business/Business ID
Method: DELETE
Input: Business ID
Output: "Business deleted successfully"
Endpoint 6:
Description: Creating new Exchange.
URL: http://127.0.0.1:5000/exchange
Method: POST
Input(JSON format):
"Name": "New York Stock Exchange",
 "Location": "New York",
 "Number of Tickers": 2799
Output: "Exchange inserted successfully"
```

Endpoint 7:

```
Description: Get all Exchanges.
URL: http://127.0.0.1:5000/exchange
Method: GET
Input: None
Output(JSON format):
 "Exchange": [
   "NASDAQ",
   "New York",
   3300
  ],
   "New York Stock Exchange",
   "New York",
   2799
 1
Endpoint 8:
Description: Updating the Exchange.
URL: http://127.0.0.1:5000/exchange
Method: PUT
Input(JSON format):
 "Name": "New York Stock Exchange",
 "Location": "New York",
 "Number of Tickers": 2800
Output: "Exchange updated successfully"
Endpoint 9:
Description: Get the Exchange by it's Name.
URL: http://127.0.0.1:5000/exchange/Name
Method: GET
Input: Name
Output(JSON format):
 "Exchange": [
   "New York Stock Exchange",
   "New York",
   2799
```

```
]
]
}
Endpoint 10:
Description: Deleting the Exchange by it's Name.
URL: http://127.0.0.1:5000/exchange/Name
Method: DELETE
Input: Name
Output: "Exchange deleted successfully"
Endpoint 11:
Description: Creating new Stock.
URL: http://127.0.0.1:5000/stocks
Method: POST
Input(JSON format):
"ID": "TSLA.NASDAQ",
 "Company ID": "TSLA",
 "Prediction ID": "1002",
 "Predict_Stock_Price": 1140,
 "Strong Buy": 1,
 "Rating Buy": 1,
 "Rating_Sell": 0,
 "Strong Sell": 0,
 "Rating Hold": 1,
 "Stock Price": 1137,
 "Sector": "Capital Goods"
Output: "Stock inserted successfully"
Endpoint 12:
Description: Get all Stocks.
URL: http://127.0.0.1:5000/stocks
Method: GET
Input: None
Output(JSON format):
 "Stock": [
```

"AAPL.NASDAQ",

"AAPL", "1001",

```
160,
   1,
   1,
   0,
   0,
   1,
   151,
   "Tech"
  ],
   "TSLA.NASDAQ",
   "TSLA",
   "1002",
   1140,
   1,
   1,
   0,
   0,
   1,
   1137,
   "Capital Goods"
]
}
Endpoint 13:
Description: Updating the Stock.
URL: http://127.0.0.1:5000/stocks
Method: PUT
Input(JSON format):
 "ID": "TSLA.NASDAQ",
 "Company ID": "TSLA",
 "Prediction_ID": "1002",
 "Predict_Stock_Price": 1138,
 "Strong_Buy": 1,
 "Rating_Buy": 1,
 "Rating Sell": 0,
 "Strong_Sell": 0,
 "Rating_Hold": 1,
 "Stock Price": 1137,
 "Sector": "Capital Goods"
```

Output: "Stock updated successfully"

Endpoint 14:

```
Description: Get the Stock by it's ID.
URL: http://127.0.0.1:5000/stocks/ID
Method: GET
Input: ID
Output(JSON format):
 "Stock": [
   "TSLA.NASDAQ",
   "TSLA",
   "1002",
   1140,
   1,
   1,
   0,
   0,
   1,
   1137,
   "Capital Goods"
  ]
]
}
```

Endpoint 15:

Description: Deleting the Stock by it's ID. URL: http://127.0.0.1:5000/stocks/ID Method: DELETE

Input: ID

Output: "Stock deleted successfully"

Endpoint 16:

```
Description: Creating Belongs To Relationship.
URL: http://127.0.0.1:5000/belongsto
Method: POST
Input(JSON format):
{
    "ID": "TSLA.NASDAQ",
    "Name": "NASDAQ"
}
Output:"BelongsTo inserted successfully"
```

Endpoint 17:

```
Description: Get all BelongsTo.
URL: http://127.0.0.1:5000/belongsto
Method: GET
Input: None
Output(JSON format):
 "Belongs To": [
   "TSLA.NASDAQ",
   "NASDAQ"
1
Endpoint 18:
Description: Updating the BelongsTo.
URL: http://127.0.0.1:5000/belongsto
Method: PUT
Input(JSON format):
"ID": "TSLA.NASDAQ",
 "Name": "New York Stock Exchange"
Output: "BelongsTo updated successfully"
Endpoint 19:
Description: Get the BelongsTo by the stock ID.
URL: http://127.0.0.1:5000/belongsto/ID
Method: GET
Input: Stock ID
Output(JSON format):
 "Belongs To": [
   "TSLA.NASDAQ",
   "NASDAQ"
]
}
```

Endpoint 20:

Description: Deleting the BelongsTo by the stock ID.

URL: http://127.0.0.1:5000/belongsto/ID

Method: DELETE Input: Stock ID

Output: "BelongsTo deleted successfully"

Endpoint 21:

```
Description: Creating Offering.
URL: http://127.0.0.1:5000/offering
Method: POST
Input(JSON format):
{
   "Offering_ID": "100A",
   "ID": "TSLA.NASDAQ",
   "Quantity_of_stock": 2,
   "Price_offered_at": 1137.01,
   "Status_Complete": "Yes",
   "Status_Incomplete": "N/A"
}
Output:"Offering inserted successfully"
```

Endpoint 22:

Endpoint 23:

Description: Updating the Offering. URL: http://127.0.0.1:5000/offering

Method: PUT

Input(JSON format):

```
"Offering_ID": "100A",
 "ID": "TSLA.NASDAQ",
 "Quantity of stock": 2,
 "Price offered at": 1139.01,
 "Status Complete": "Yes",
 "Status Incomplete": "N/A"
Output: "Offering updated successfully"
Endpoint 24:
Description: Get the Offering by the Offering ID.
URL: http://127.0.0.1:5000/offering/Offering ID
Method: GET
Input: Offering ID
Output(JSON format):
 "Offering": [
   "100A",
   "TSLA.NASDAQ",
   1139.01,
   "Yes",
   "N/A"
  1
]
Endpoint 25:
Description: Deleting the Offering by the Offering ID.
URL: http://127.0.0.1:5000/offering/Offering ID
Method: DELETE
Input: Offering ID
Output: "Offering deleted successfully"
Endpoint 26:
Description: Creating an Analyst.
URL: http://127.0.0.1:5000/analyst
Method: POST
Input(JSON format):
 "Analyst ID Number": "AE10",
```

```
"ID": "TSLA.NASDAQ",
 "Name": "Peter Parker",
 "Company": "Accenture"
Output: "Analyst inserted successfully"
Endpoint 27:
Description: Get all Analyst.
URL: http://127.0.0.1:5000/analyst
Method: GET
Input: None
Output(JSON format):
 "Analyst": [
   "AE10",
   "TSLA.NASDAQ",
   "Peter Parker",
   "Accenture"
1
Endpoint 28:
Description: Updating the Analyst.
URL: http://127.0.0.1:5000/analyst
Method: PUT
Input(JSON format):
 "Analyst ID Number": "AE10",
 "ID": "TSLA.NASDAQ",
 "Name": "Will Smith",
 "Company": "Accenture"
Output: "Analyst updated successfully"
Endpoint 29:
Description: Get the Analyst by the Analyst ID Number.
URL: http://127.0.0.1:5000/analyst/Analyst ID Number
Method: GET
Input: Analyst ID Number
Output(JSON format):
 "Analyst": [
```

```
"AE10",
   "TSLA.NASDAQ",
   "Will Smith",
   "Accenture"
]
}
Endpoint 30:
Description: Deleting the Analyst by the Analyst ID Number.
URL: http://127.0.0.1:5000/analyst/Analyst ID Number
Method: DELETE
Input: Analyst ID Number
Output: "Analyst deleted successfully"
Endpoint 31:
Description: This call is used to create a new user in the USER table using username as the key
URL: http://127.0.0.1:5000/newuser
Method: POST
Input:(JSON format):
"Username": "TestUser",
"Password": "abcdef",
 "Permissions": "Test"
Output:: "New User Created"
Endpoint 32:
Description: This API call returns a specific users information (username, password and permissions)
URL: http://127.0.0.1:5000/user/Laura
Method: GET
Input:(JSON format): None
Output: "That User does not exist"
Output(JSON format:
```

"username": [

"Laura", "abcdef", "Test"

```
]
]
}
Endp
```

Endpoint 33:

```
Description: This API call is used to update a users password in the USER table URL: http://127.0.0.1:5000/user/Laura
```

```
Method: PUT
Input:(JSON format):
{
    "Password": "laura"
}
```

Output: "Password updated successfully"

Endpoint 34:

```
Description: This API call us used to delete a user and their information from the USER table
```

```
URL: http://127.0.0.1:5000/user/TestUser
```

```
Method: DEL
Input:(JSON format):
{
    "Password": "laura"
}
```

Output:"User deleted successfully"

OR

Output: "That User does not exist"

Endpoint 35:

Description: This API call is used to create a New watchlist in the WATCHLIST table

```
URL: http://127.0.0.1:5000/newWatchlist
```

```
Method: POST
Input:(JSON format):
{
    "List_Number": "4"
}
```

Output: "New Watchlist Created"

Endpoint 36:

Description: This API call adds a new stock to the CONTAINS table where the watchlist ID used as a key. It will return either successfully added or that the watchlist is already in the list

URL: http://127.0.0.1:5000/watchlist/4

Method: POST Input:(JSON format):

```
{
    "Stock_ID": "AAPL.NASDAQ"
}

Output(JSON format):
{
    "AAPL.NASDAQ": "is already in Watchlist"
}

OR
Output(JSON format)
{
    "AAPL.NASDAQ": "has been added to WatchList"
}
```

Endpoint 37:

Description: This API call deletes a stock from the CONTAINS table where the watchlist ID used as a key to reference the WATCHLIST table

```
URL: http://127.0.0.1:5000/watchlist/4
```

```
Method: DEL
Input:(JSON format):
{
```

```
{
    "Stock_ID": "AAPL.NASDAQ"
}
Output(JSON format):
```

"AAPL.NASDAQ": "has been deleted successfully from your Watchlist" }

Endpoint 38:

Description: This API returns stocks from the CONTAINS table where the watchlist ID used as a key to reference the WATCHLIST table

URL: http://127.0.0.1:5000/watchlist/1

Method: GET

Input:(JSON format): None

```
1,
    "AAPL.NASDAQ"
1
```

Endpoint 39:

Description: This API call returns all users information that is entered in the USERS table or specifies that there are no users in the table

```
URL: http://127.0.0.1:5000/admin/usersall
```

Method: GET

Input:(JSON format): None

Output(JSON format):

"No Users In Data Base"

```
OR
Output(JSON format):
  "username": [
       "abhay",
       "abcdef",
       "Test"
    ],
       "Laura",
       "abcdef",
       "Test"
     ],
       "TestUser",
       "abcdef",
```

Endpoint 40:

]

Description: This API call is used to update a specific users permission in the USER table

URL:http://127.0.0.1:5000/admin

Method: PUT

Input:(JSON format):{

"Test"

"Permissions": "TestChange",

"Username": "abhay"

```
}
Output(JSON format):
"Permissions updated successfully"
Endpoint 41:
Description: This API call is used to delete a specific user from the USER database
URL:http://127.0.0.1:5000/admin
Method: DEL
Input:(JSON format):
{
  "Username": "abhay"
}
Output(JSON format):
"User deleted successfully"
OR
Output(JSON format):
"That User does not exist"
Endpoint 42:
Description: This API call is used to create a private user in the PRIVATE table
URL:http://127.0.0.1:5000/private
Method: POST
Input:(JSON format):
  "Username": "Laura",
  "List Number": "",
  "Role Type": "Private"
Output(JSON format):
  "Laura": "has been added to Private"
Endpoint 43:
Description: This API call is used to delete a private user from the PRIVATE table
URL:http://127.0.0.1:5000/private
Method: DEL
Input:(JSON format):
```

```
"Username": "Laura"
}
Output(JSON format):
"User deleted successfully"
OR
Output(JSON format):
"That User does not exist"
Endpoint 44:
Description: This API call is used to return the details for a specific user (username, watchlist, and role)
from the PRIVATE table
URL:http://127.0.0.1:5000/private
Method: GET
Input:(JSON format):
  "Username": "Laura"
}
Output(JSON format):
  "UserDetails": [
       "Laura",
       2,
       "Private"
    ]
  ]
Endpoint 45:
Description: This API call is used to update the watchlist number that the user is watching
URL:http://127.0.0.1:5000/private
Method: PUT
Input:(JSON format):
  "Username": "Laura",
  "List_Number": "5"
}
```

```
Output(JSON format):
"WatchList updated successfully"
Endpoint 46:
Description: This API call is used to create a Professional Account in the PROFESSIONAL table
URL:http://127.0.0.1:5000/professional
Method: POST
Input:(JSON format):
  "Username": "Laura",
  "List Number": "1",
  "Role_Type" : "professional"
Output(JSON format):
  "Laura": "has been added to Professional"
Endpoint 47:
Description: This API call is used to delete a Professional user from the PROFESSIONAL table
URL:http://127.0.0.1:5000/professional
Method: DEL
Input:(JSON format):
  "Username": "Laura"
Output(JSON format):
"User deleted successfully"
OR
Output(JSON format):
"That User does not exist"
Endpoint 48:
Description: This API call is used to return the details for a specific user (username, watchlist, and role)
from the PROFESSIONAL table
URL:http://127.0.0.1:5000/professional
Method: GET
Input:(JSON format):
```

```
"Username": "Laura"
}
Output(JSON format):
  "UserDetails": [
       "Laura",
       1,
       "professional"
    1
  1
Endpoint 49:
Description: This API call is used to update the watchlist number that the professional user is watching
URL: http://127.0.0.1:5000/professional
Method: PUT
Input:(JSON format):
  "Username": "Laura",
  "List Number": "4"
}
Output(JSON format):
"WatchList updated successfully"
```

Endpoint 50:

```
Description: Creating new Stockevent.
URL: http://127.0.0.1:5000/stockevent
Method: POST
Input(JSON format):
{
    "Event_ID": "1002",
    "Stock_ID": "AAPL.NASDAQ",
    "Time": "12:00:00",
    "Date": "2022-07-24",
    "P_ID": "1001",
    "Bearish_sentiment": "0",
    "Neutral_sentiment": "0",
    "Bullish_sentiment": "1",
```

```
"Price_Change": 4,
 "Predict_Stock_Events": "Null"
}
Output: "Stockevent INSERTED successfully"
Endpoint 51:
Description: Get all Stockevent.
URL: http://127.0.0.1:5000/stockevent
Method: GET
Input: None
Output(JSON format):
 "Stockevent": [
  "1002",
        "AAPL.NASDAQ",
        "12:00:00",
        "2022-07-24",
        "1001",
        "0",
        "0",
        "1",
        4,
        "Null"
  ]
 ]
Endpoint 52:
Description: Updating the Stockevent.
URL: http://127.0.0.1:5000/stockevent
Method: PUT
Input(JSON format):
 "Event_ID": "1002",
 "Stock_ID": "AAPL.NASDAQ",
 "Time": "12:00:00",
 "Date": "2022-07-24",
 "P_ID": "1001",
 "Bearish_sentiment": "10",
 "Neutral_sentiment": "10",
 "Bullish_sentiment": "1000",
```

```
"Price_Change": 6,
 "Predict_Stock_Events": "Null"
Output: "Stockevent updated successfully"
Endpoint 53:
Description: Creating new PR.
URL: http://127.0.0.1:5000/pr
Method: POST
Input(JSON format):
 "Event_ID": "1002",
 "P_ID": "1001",
 "Headline": "New Highs for Apple",
 "Predict Stock Events": "Null"
Output: "PR INSERTED successfully"
Endpoint 54:
Description: Get all PR.
URL: http://127.0.0.1:5000/PR
Method: GET
Input: None
Output(JSON format):
 "PR": [
  "1002",
        "1001",
        "New Highs for Apple",
        "Null"
  ]
 ]
Endpoint 55:
Description: Updating the PR.
URL: http://127.0.0.1:5000/pr
Method: PUT
Input(JSON format):
 "Event ID": "1002",
```

```
"P_ID": "1001",
 "Headline": "New Highs for Apple 3T MK",
 "Predict_Stock_Events": "Null"
Output: "PR updated successfully"
Endpoint 56:
Description: Creating new Prediction.
URL: http://127.0.0.1:5000/prediction
Method: POST
Input(JSON format):
 "P_ID": "1001"
Output: "Prediction INSERTED successfully"
Endpoint 57:
Description: Get all Prediction.
URL: http://127.0.0.1:5000/prediction
Method: GET
Input: None
Output(JSON format):
 "Prediction": [
  "1001"
]
Endpoint 58:
Description: Updating the Prediction.
URL: http://127.0.0.1:5000/prediction
Method: PUT
Input(JSON format):
 "P_ID": "1011",
Output: "Prediction updated successfully"
```

Endpoint 59:

Description: Creating new Secfiling.

```
URL: http://127.0.0.1:5000/secfiling
Method: POST
Input(JSON format):
 "Event_ID": "1002",
 "P ID": "1001",
 "Type_of_Filing": "10-K",
 "Predict Stock Events": "Null"
Output: "Secfiling INSERTED successfully"
Endpoint 60:
Description: Get all Secfiling.
URL: http://127.0.0.1:5000/secfiling
Method: GET
Input: None
Output(JSON format):
 "Secfiling": [
  "1002",
        "1001",
        "10-K",
        "Null"
  ]
 ]
Endpoint 61:
Description: Updating the Secfiling.
URL: http://127.0.0.1:5000/secfiling
Method: PUT
Input(JSON format):
 "Event_ID": "1002",
 "P ID": "1001",
 "Type of Filing": "8-K",
 "Predict_Stock_Events": "Null"
Output: "Secfiling updated successfully"
```

Endpoint 62:

```
Description: Creating new 52 Week.
URL: http://127.0.0.1:5000/week52
Method: POST
Input(JSON format):
{
    "Event_ID": "1002",
    "P_ID": "1001",
    "Value_1": "159",
    "Type_High": "1",
    "Type_Low": "0",
    "Predict_52Week": "Null"
}
```

Output:"52 Week INSERTED successfully"

Endpoint 63:

Endpoint 64:

```
Description: Updating the 52 Week.
URL: http://127.0.0.1:5000/week52
Method: PUT
Input(JSON format):
{
    "Event_ID": "1002",
```

```
"P_ID": "1001",

"Value_1": "160",

"Type_High": "1",

"Type_Low": "0",

"Predict_52Week": "Null"
}
```

Output: "Week52 updated successfully"