My project is a Stock Management Website, which has the following features:

1. Lookup **real-time** share prices from an online database ([www.alphavantage.com](http://www.alphavantage.com)) and allow users to **buy** and **sell** shares based on that.
2. Show transaction history to all users and facilitate PDF report generation of the same.
3. Place advertisements on the web-app to promote a particular company.
4. Show live graph of the rise and fall in the selected share price.
5. Show current trends in the most transacted shares of a particular user graphically.
6. **Friend** system to keep in touch with reliable people and send emails to them to let them know quickly about say, some rapid drop in share prices which allows to make huge profit.
7. Prediction of share prices, the currently trending shares and several other analytics tools are provided to allow users to make the best decisions before purchasing any share.

The schema is not complete, for I wish to add more segments to my project; for example, an **admin** entity which has ‘can\_delete’ relation with users, ‘analytics’ relation with nearly all other entity and so on. I will be adding to the model as necessary since I have already created the necessary facilities for my project in this model; everything else will be add-on features, but there will be many more.

**Description**:

Users-Stores user data.

Transactions-Stores history of transactions. Has Foreign key ‘user\_id’ linked with id field in Users table.

Advertisements-Stores users who has paid for advertisements on the site.

Predictions: Predicts the future prices of shares.

Friends-Stores a list of trusted people who the user can privately interact with.

**Interface**:

The main application logic is written in Python. Web logic handling is done by Javascript and JQuery

Front-end: HTML, CSS, Bootstrap

Database used: SQLite, SQL (For alphavantage)

Server used: Flask

Data formats: JSON, plain text

Queries used to create table (alongside schema):

CREATE TABLE friends (uid INTEGER PRIMARY KEY, f1 INTEGER, f2 INTEGER, f3 INTEGER, f4 INTEGER, f5 INTEGER)

CREATE TABLE 'advertisement' ('symbol' varchar(10) PRIMARY KEY NOT NULL, 'imagesource' varchar(25), 'alttext' varchar(25), 'description' varchar(1000), 'link' varchar(100), 'priority' integer, 'duration' integer, 'created' datetime DEFAULT CURRENT\_TIMESTAMP )

CREATE TABLE 'predictions' ('symbol' varchar(10) PRIMARY KEY NOT NULL,'price' real)

CREATE TABLE 'transactions' ('id' INTEGER PRIMARY KEY AUTOINCREMENT NOT NULL, 'user\_id' INTEGER NOT NULL, 'symbol' TEXT NOT NULL, 'shares' INTEGER NOT NULL, 'price\_per\_share' REAL NOT NULL, 'created\_at' DATETIME NOT NULL DEFAULT CURRENT\_TIMESTAMP )

CREATE TABLE 'users' ('id' INTEGER PRIMARY KEY AUTOINCREMENT NOT NULL, 'username' TEXT NOT NULL, 'hash' TEXT NOT NULL, 'cash' NUMERIC NOT NULL DEFAULT 10000.00 , 'email' varchar(20))