Readme File

This project aims at performing a full integrated quantitative trading module including building relational database, calibrating model parameters, back testing, trading simulation and front-end exhibition. We have three Python files that contains the main logic of the model. We also have several HTML files that create the dashboard.

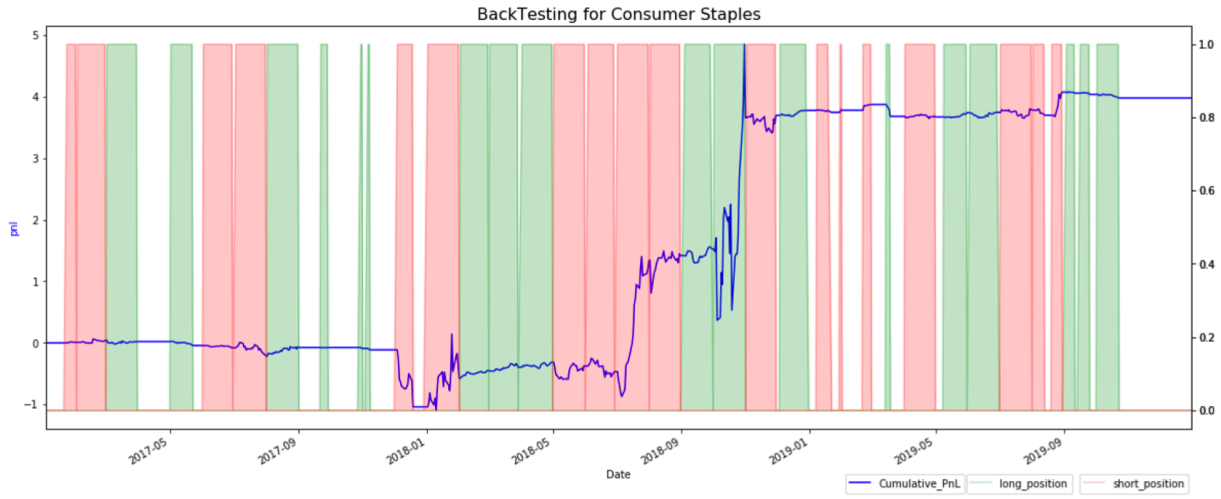
Python File 1: Database.py

This file contains all the functions about building relational database, include downloading data from website, model calibration, creating table and saving data to database. The following graph shows the design of database:

Name	Type	Schema
Tables (6)		
Portfolio		CREATE TABLE "Portfolio" ("GroupName" VARCHAR(50) NOT NULL, "Year" VAR
GroupName	VARCHAR(50)	"GroupName" VARCHAR(50) NOT NULL
Year	VARCHAR(4)	"Year" VARCHAR(4) NOT NULL
Month	VARCHAR(2)	"Month" VARCHAR(2) NOT NULL
Miu	FLOAT	"Miu" FLOAT NOT NULL
Sigma	FLOAT	"Sigma" FLOAT NOT NULL
Result		CREATE TABLE "Result" ("GroupName" VARCHAR(50) NOT NULL, "Year" VARCH
GroupName	VARCHAR(50)	"GroupName" VARCHAR(50) NOT NULL
Year	VARCHAR(4)	"Year" VARCHAR(4) NOT NULL
PnL	FLOAT	"PnL" FLOAT NOT NULL
StockGroups		CREATE TABLE "StockGroups" ("GroupName" VARCHAR(50) NOT NULL, "Year"
GroupName	VARCHAR(50)	"GroupName" VARCHAR(50) NOT NULL
Year	VARCHAR(4)	"Year" VARCHAR(4) NOT NULL
Symbol	VARCHAR(50)	"Symbol" VARCHAR(50) NOT NULL
StockPrice		CREATE TABLE "StockPrice" ("Symbol" VARCHAR(50) NOT NULL, "Date" VARCH
Symbol	VARCHAR(50)	"Symbol" VARCHAR(50) NOT NULL
Date	VARCHAR(50)	"Date" VARCHAR(50) NOT NULL
Open	FLOAT	"Open" FLOAT NOT NULL
High	FLOAT	"High" FLOAT NOT NULL
Low	FLOAT	"Low" FLOAT NOT NULL
Close	FLOAT	"Close" FLOAT NOT NULL
Adjusted_close	FLOAT	"Adjusted_close" FLOAT NOT NULL
Volume	INTEGER	"Volume" INTEGER NOT NULL
Trading		CREATE TABLE "Trading" ("Date" TEXT, "Net_Value" FLOAT, "S_stats" FLOAT, pr
Date	TEXT	"Date" TEXT
Net_Value	FLOAT	"Net_Value" FLOAT
S_stats	FLOAT	"S_stats" FLOAT
profit_loss	FLOAT	"profit_loss" FLOAT
Holding	BIGINT	"Holding" BIGINT
GroupName	TEXT	"GroupName" TEXT
Year	BIGINT	"Year" BIGINT
TradingQuantity		CREATE TABLE "TradingQuantity" ("Symbol" VARCHAR(50) NOT NULL, "Positior
Symbol	VARCHAR(50)	"Symbol" VARCHAR(50) NOT NULL
Position	FLOAT	"Position" FLOAT NOT NULL
GroupName	VARCHAR(50)	"GroupName" VARCHAR(50) NOT NULL
Year	VARCHAR(4)	"Year" VARCHAR(4) NOT NULL
Month	VARCHAR(2)	"Month" VARCHAR(2) NOT NULL

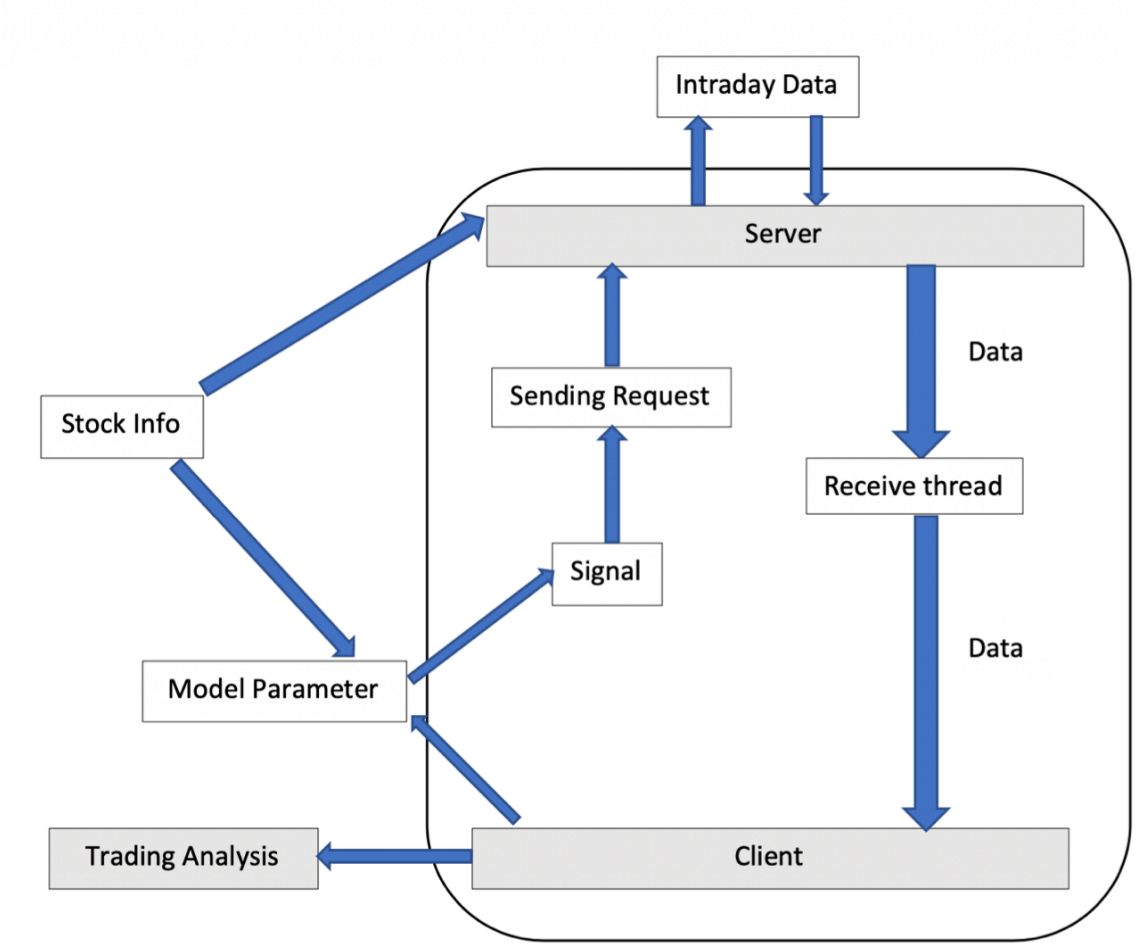
Python File 2: BackTesting.py

This file contains the source code of back-testing and visualization of the trading strategy result. The following chart shows one of the results:

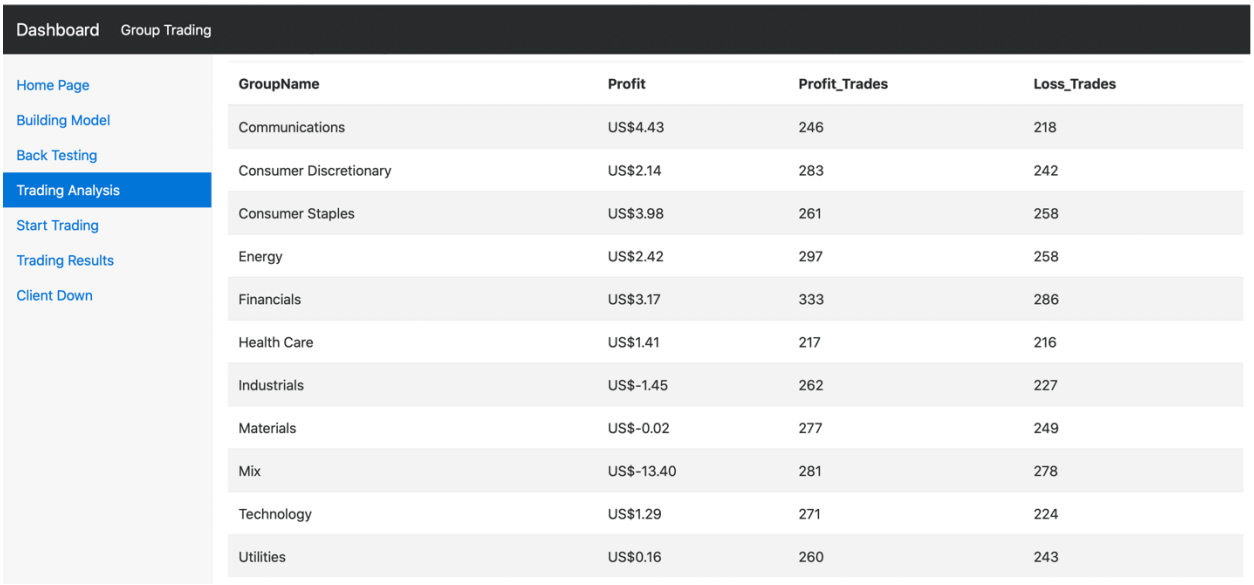


Python File 3: Integrate.py

This file contains the source code for server client communications and trading simulation, the chart below shows how it works.



HTML Files: Create Dashboard to show results



GroupName	Profit	Profit_Trades	Loss_Trades
Communications	US$4.43	246	218
Consumer Discretionary	US$2.14	283	242
Consumer Staples	US$3.98	261	258
Energy	US$2.42	297	258
Financials	US$3.17	333	286
Health Care	US$1.41	217	216
Industrials	US$-1.45	262	227
Materials	US$-0.02	277	249
Mix	US$-13.40	281	278
Technology	US$1.29	271	224
Utilities	US$0.16	260	243