# Earnings Performance Process

## Assignment/Endpoint Legend

- Finnhub API
- Polygon.io API
- User Inputs

Two service providers used as:

Finnhub provides earnings data but only one year of historical candles on free tier

Polygon.io provides two years of historical candles on free tier but no earnings data

## Application Launch

### Finnhub API

RETURN list of symbol, hour, date

### Application

CALL Finnhub earnings calendar endpoint

ASSIGN from = Sunday, this week to = Saturday, next week

Date formats YYYY-MM-DD

DISPLAY sorted list by date, show user Date, Symbol and Hour

Hours returned as bmo (before market open), amc (after market close), or dmh (during market hours)

### User

Start

Launch earnings application/ interface

VIEW returned results

## Earnings History of Ticker

### Finnhub API

RETURN list of hour, date, epsActual, epsEstimate, revenueAction, revenueEstimate

### Application

CALL Finnhub earnings calendar endpoint

ASSIGN symbol = User selection

ASSIGN startDate = today's Date – 2 years endDate = selected earnings date

### User

SELECT symbol for which data is to be retrieved

## Retrieve Earnings Day Performance

### Polygon.io API

Notes on returned OHLC data:
O = open
C = close
Vw = weighted Price
T = unix time in milliseconds for start of window

RETURN 2 days ticker performance

### Application

ASSIGN stockTicker = symbol Polygon.io constants parameters

Constants:
Multiplier = 2
Timespan = minute
Sort = asc

FAPI to be used with dot notation

FOR EACH result returned from Finnhub API (fAPI)

End of List?

Yes → A

No → B

CHECK fAPI.hour notation

Result

AMC → ASSIGN from = fAPI.Date to = fAPI.Date + 1 day

BMO or DMH → ASSIGN from = fAPI.Date – 1 Day to = fAPI.Date

CALL Polygon.io Aggregates (Bars) endpoint

## Classify Results

TARGET = Between 3:46PM EST/ EDT and 3:54PM EST/EDT prior to earnings
OPEN = 9:30AM EST/EDT after earnings
OUTSIDE = All others

FOR EACH result returned from Polygon.io API (pAPI)

End of List?

Yes → D

No → C

CONVERT pAPI.t to EST/EDT (market hours)

CLASSIFY time window into TARGET, OUTSIDE, and OPEN

Result

WHEN pAPI.t = 3:46, ASSIGN windowOpen = pAPI.o

WHEN pAPI.t = 3:54, ASSIGN windowClose = pAPI.c

ASSIGN marketOpen = pAPI.o

OUTSIDE → C

5 data points are retrieved, thus y1 = 1, y2 = 5. Slope defined as (y2-y1)/(x2-x1)

X2 = windowClose
X1 = windowOpen

CALCULATE and ASSIGN slope between two points where numerator = 4

ASSIGN slopeClassification as STRONG or WEAK and BULLISH or BEARISH

> 0.5 = STRONG BULLISH
0 > x > 0.5 = WEAK BULLISH
= 0 = UNDETERMINED
-0.5 < x < 0 = WEAK BEARISH
< -0.5 = STRONG BEARISH

If windowClose < marketOpen AND slopeClassification contains bearish then "Success" else "Fail"

If windowClose > marketOpen AND slopeClassification contains bullish then "Success" else "Fail"

If windowClose = marketOpen then "Fail"

ASSIGN result by comparing classification against marketOpen

DISPLAY fAPI.Date, slope, slopeClassification, windowClose, marketOpen, result

## Data Consumption

A

VIEW returned results

End