MIMS

Mobile Inventory Management System

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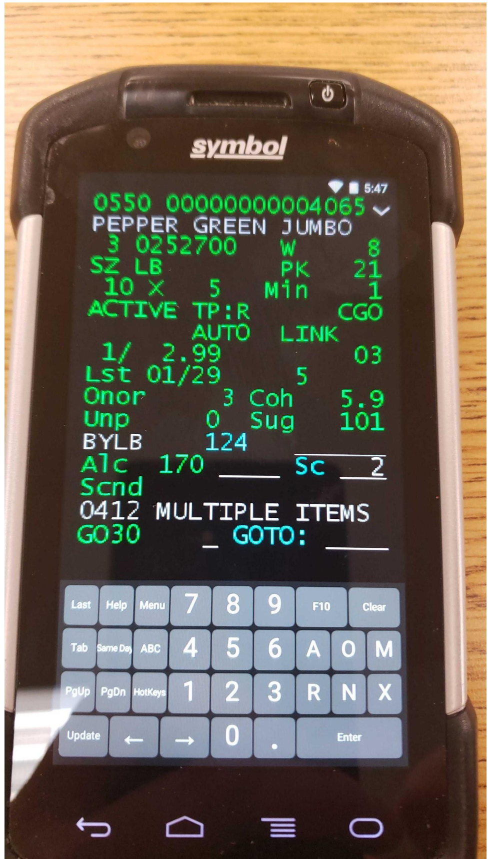
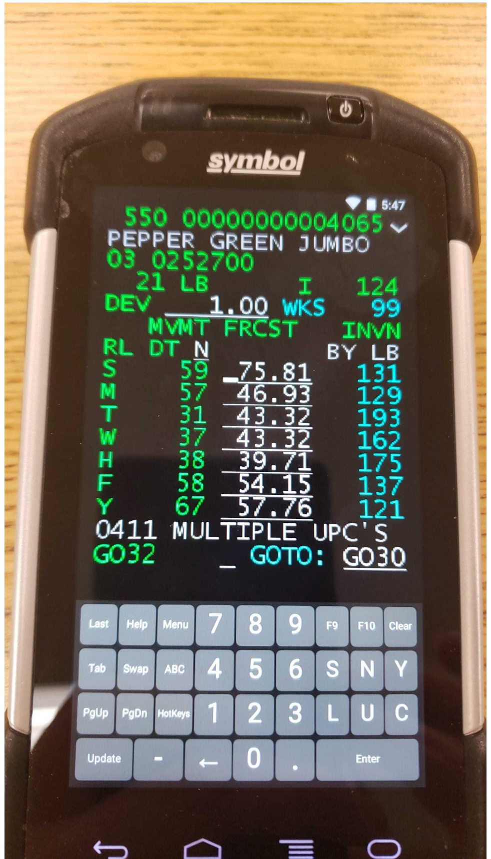
Senior Project, Spring 2019
Dr. Baliga

Current App in use and its flaws



```
0550 00000000004065
PEPPER GREEN JUMBO
 3 0252700       W      8
SZ LB            PK    21
 10 X    5     Min      1
ACTIVE TP:R           CGO
       AUTO   LINK
 1/   2.99             03
Lst 01/29         5
Onor        3 Coh     5.9
Unp        0  Sug     101
BYLB       124
Alc   170 ____  Sc  __2
Scnd
0412 MULTIPLE ITEMS
GO30        _ GOTO: _____
```

symbol
Last Help Menu 7 8 9 F10 Clear
Tab Same Day ABC 4 5 6 A O M
PgUp PgDn HotKeys 1 2 3 R N X
Update ← → 0 . Enter



```
 550 00000000004065
PEPPER GREEN JUMBO
03 0252700
  21 LB          I    124
DEV ___1.00 WKS        99
   MVMT FRCST        INVN
RL DT N              BY LB
S     59  _75.81      131
M     57   46.93      129
T     31   43.32      193
W     37   43.32      162
H     38   39.71      175
F     58   54.15      137
Y     67   57.76      121
0411 MULTIPLE UPC'S
GO32      _ GOTO: GO30
```

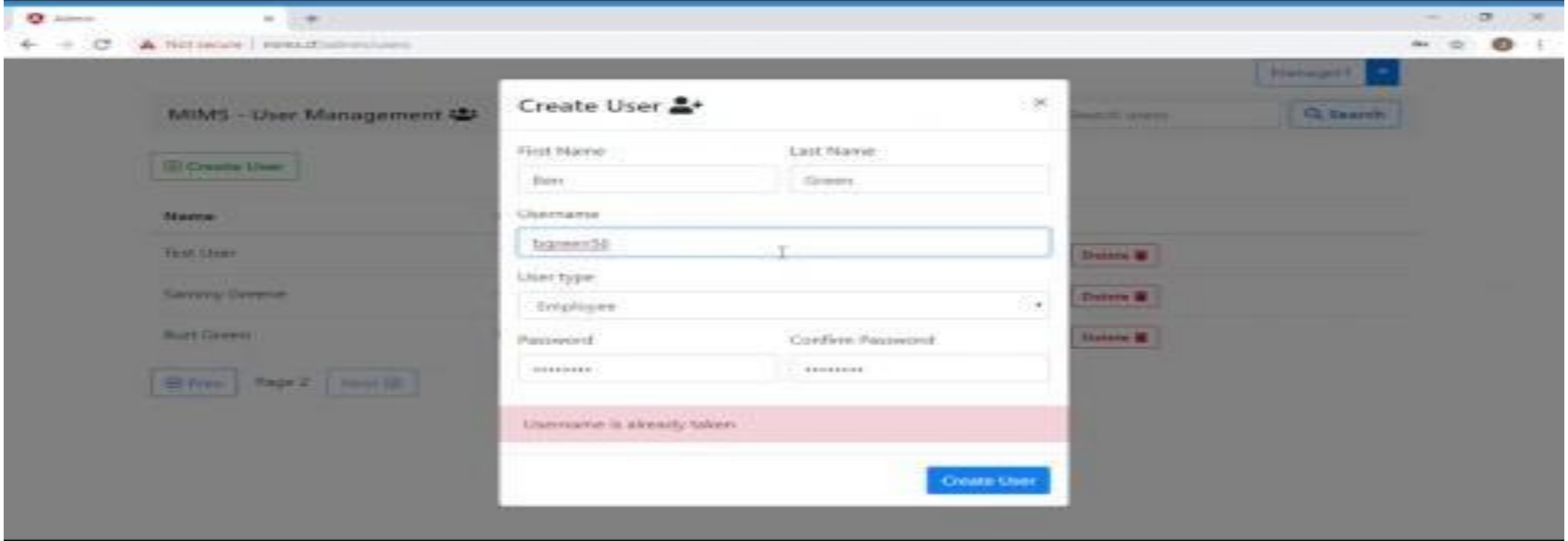
symbol
Last Help Menu 7 8 9 F9 F10 Clear
Tab Swap ABC 4 5 6 S N Y
PgUp PgDn HotKeys 1 2 3 L U C
Update - ← 0 . Enter

Features

- Admin website to allow managers to create employees to login to the app
- App for employees to use to search products with various criteria
- Viewing details of a product
- Adjusting inventory of a product
- Sales movement system to view past product sales history
- Future sales prediction system to view predicted future sales

Stretch goals

- Analytic tools to visualize product sales
- In app barcode scanner to look up products
- Conversions to from imperial to metric system
- Chat system



Test User

Sammy Greene

Burt Green

First Name: Ben

Last Name: Green

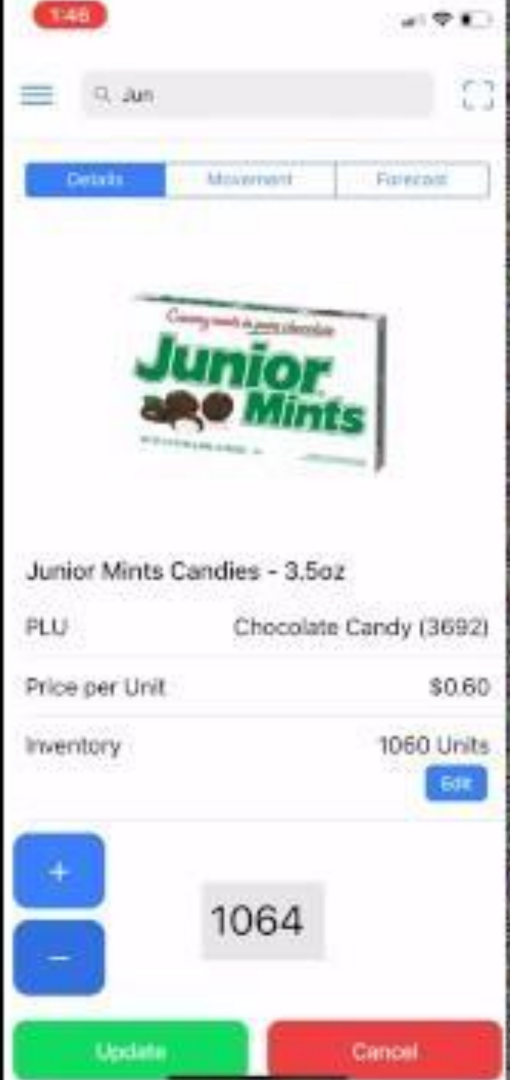
Username: bgreen58

User type: Employee

Password: ••••••••••

Confirm Password: ••••••••••

Username is already taken

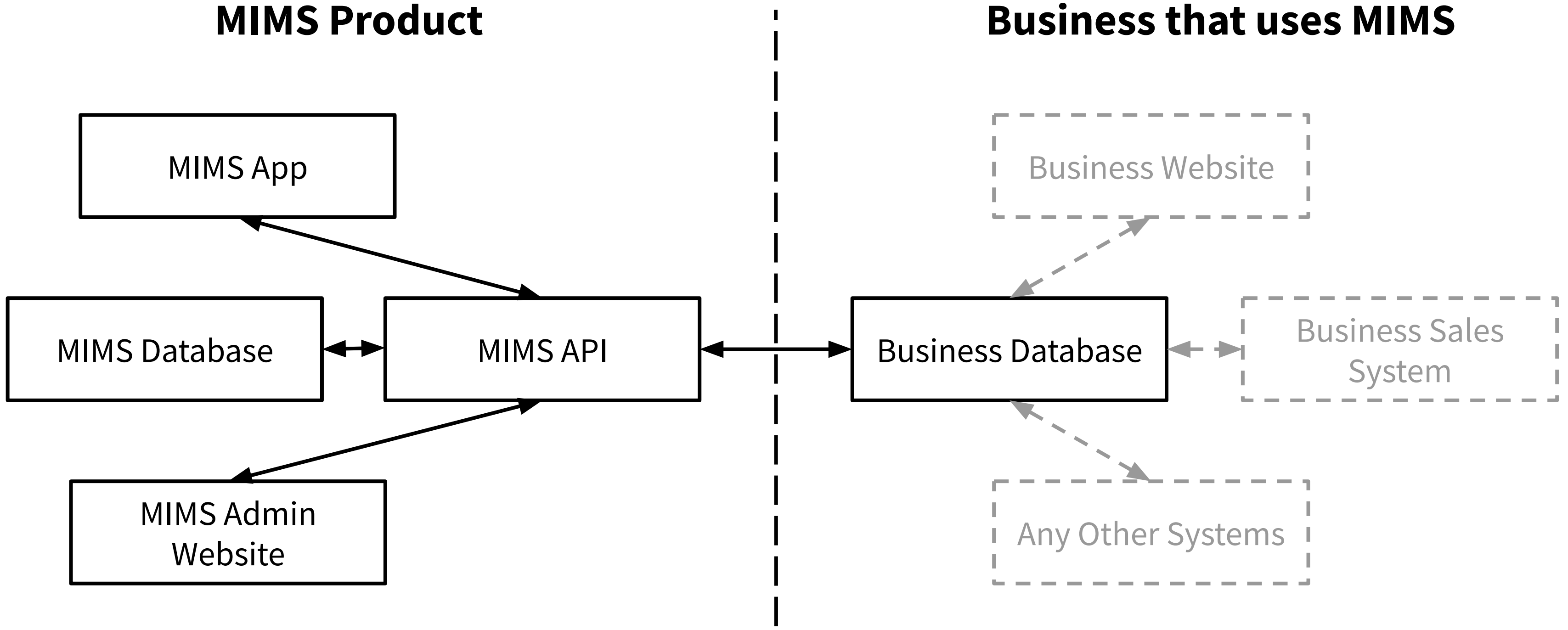

1:46

Jun

Junior Mints Candies - 3.5oz

PLU	Chocolate Candy (3692)
Price per Unit	$0.60
Inventory	1060 Units

Project Architecture



MIMS App

- Built with Ionic 4, a hybrid mobile app framework
- Single code base, can be built for all mobile platforms + web

Benefits

- One code base, many platforms
- App can be accessed from a web browser
- Open source plugins (barcode scanner, visualizations)

ionic

MIMS Admin

- Built with Angular and Bootstrap
- Allowed for rapid development of features

Benefits

- Similar setup as our app because Ionic is built on top of Angular
- Easy and quick to get good looking and functional features with Bootstrap

MIMS API

- Built with Python Flask
- Uses many Python modules like SQLAlchemy, Json Web Tokens (JWT), and PassLib

Benefits

- Flask allowed for rapid development of endpoints
- Open source Python modules gave us access to a lot of high quality functionality with little development time for us

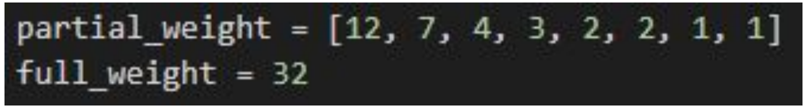
Flask
web development,
one drop at a time

Simulated Business Database

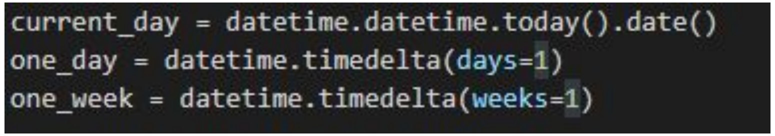
- Simulates sales going a year back
- Sales only happen during store hours
- More sales during busy times of day
- 3 different types of shoppers
- May order new items everyday
- Changes prices at the beginning every week

Forecast Algorithm

- Exponentially weighted algorithm
  - Makes sure more recent dates are taken more heavily than older dates.
  - Helps take seasonal items into play

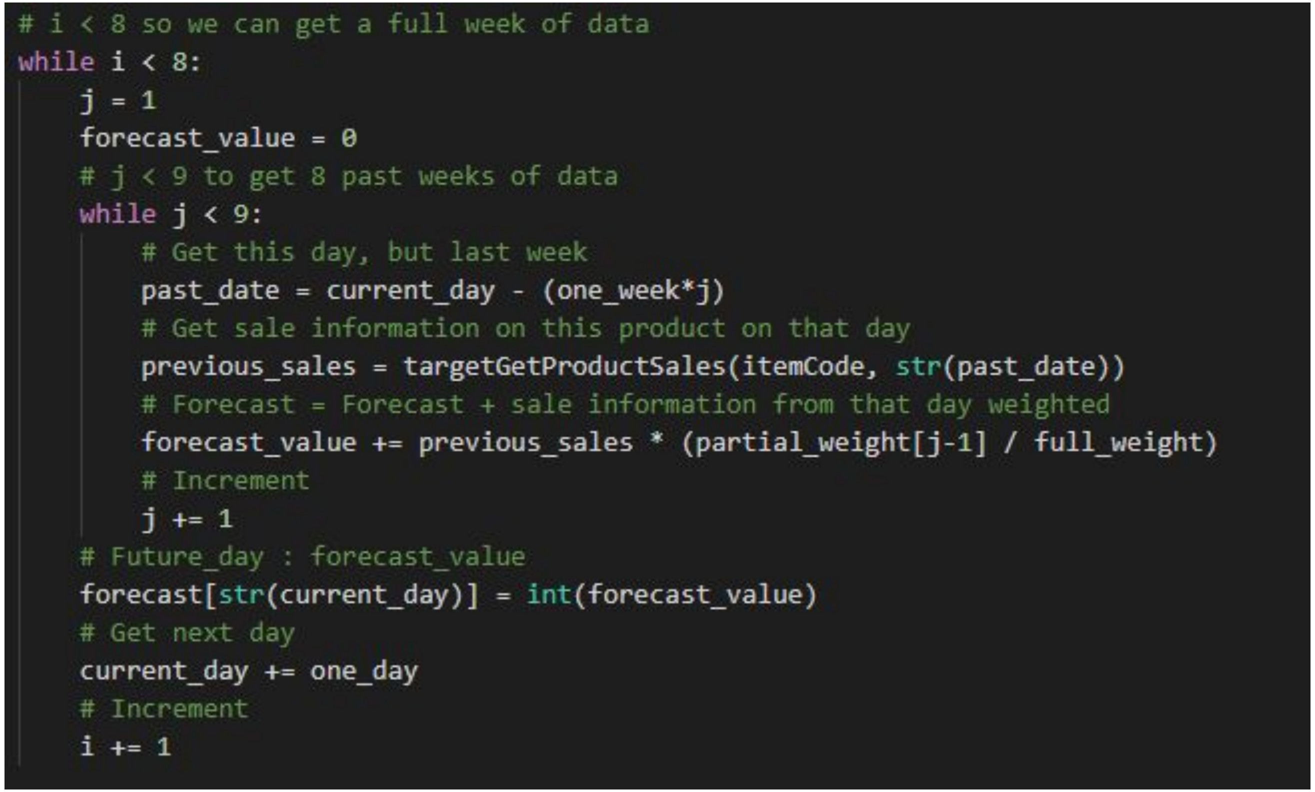


```
partial_weight = [12, 7, 4, 3, 2, 2, 1, 1]
full_weight = 32
```



```
current_day = datetime.datetime.today().date()
one_day = datetime.timedelta(days=1)
one_week = datetime.timedelta(weeks=1)
```

Forecast Algorithm



```python
# i < 8 so we can get a full week of data
while i < 8:
    j = 1
    forecast_value = 0
    # j < 9 to get 8 past weeks of data
    while j < 9:
        # Get this day, but last week
        past_date = current_day - (one_week*j)
        # Get sale information on this product on that day
        previous_sales = targetGetProductSales(itemCode, str(past_date))
        # Forecast = Forecast + sale information from that day weighted
        forecast_value += previous_sales * (partial_weight[j-1] / full_weight)
        # Increment
        j += 1
    # Future_day : forecast_value
    forecast[str(current_day)] = int(forecast_value)
    # Get next day
    current_day += one_day
    # Increment
    i += 1
```

Questions or comments?