Dee's Bakery – *Alalade, Oluwaferanmi*

	AAPL	BBRD	CCC
22/08/2020	-180	880	510
23/08/2020	-700	690	-750
24/08/2020	-1470	180	-1390

Figure 1:1JS

	AAPL	BBRD	CCC
22/08/2020	180	670	450
23/08/2020	-150	610	570
24/08/2020	-490	710	530

Figure 2: 2WS

	AAPL	BBRD	CCC
22/08/2020	80	250	210
23/08/2020	-330	50	490
24/08/2020	-500	-210	850

Figure 3: 3PUFF

A/B. ISSUES AND SOLUTIONS AROUND ORDER FULFILLMENT

The figures above show the inventory of the different Dee's Locations at the different dates. The figures were copied from the python notebook also submitted. It can be seen that there are a lot of negatives, which mean there is a deficit (Orders are owed to customers).

1. **Jane Street**
   - 1JS – The issues that occurred at this location were the Chocolate chip cookies and Apple Pie deficit. One would think the deficit occurred due to the issues with the Apple Pie transport issue, but according to my analysis, there will still be deficit if the shipments had occurred. Ref Figure 4.

	AAPL	BBRD	CCC
22/08/2020	170	880	510
23/08/2020	-200	690	-750
24/08/2020	-670	180	-1390

Figure 4: 1JS inventory if the shipments of Apple pies were successful

   - To curb the chocolate chips cookie deficit, the surplus in 2WS on the 23rd could be could be shipped to 1JS, since they are both a day's journey away from the mega bakery, and are both located in New York City, the journey should not be long. If 530 chocolate chip cookies were shipped from 2WS to 1JS, this will leave just a deficit of 222 cookies which could be moved from 3PUFF which has an excess supply of cookies.

2. **Wall Street**
    - There was only an issue with apple pie deficit which would have been solved if there was no issue in the transport of Apple pies as shown in the figure below

	AAPL	BBRD	CCC
22/08/2020	330	670	450
23/08/2020	350	610	570
24/08/2020	260	710	530

Figure 5

3. **Poughkeepsie**
    - As seen in figure 3, there was a deficit in Banana bread on the 24th, this could have been solved by moving the surplus from either 1JS or 2WS.
    - A deficit in Apple pies was also spotted.

C. System to Prevent Order Fulfillment Issues

1. **Demand Prediction**: The demand at the different outlets could be predicted using Machine Learning Algorithms by studying the demand patterns at the outlets. This will help in knowing the quantity of each product to supply. This will allow for adequacy at the outlets.
2. **Oven Upgrade**: Getting a bigger oven will increase the Production capacity at the mega bakery. This will increase the supply to the different outlets.
3. **Inventory Control**: This allows the outlets to know exactly the product that is needed.
4. **Partnering with other bakeries in the area**: Partnering with bakeries in the area will allow borrowing i.e. when there is a deficit of a particular product, it can be easily borrowed and transported from the partner.
5. **Transport**: Improving the transport efficiency by getting more trucks and proper maintenance of the available trucks to prevent unforeseen transport issues.