NYU

Product Order Management System (POMS) for Chongqing United Technology Inc.

Shuai Zhi

December 12, 2023

Agenda

Applied Project

Presentation in fulfillment of requirements of the NYU Capstone course in Fall 2023

1. Project Background
2. Project Objectives
3. Project Results
4. Conclusions and Recommendations

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Project Background

01

Project Background

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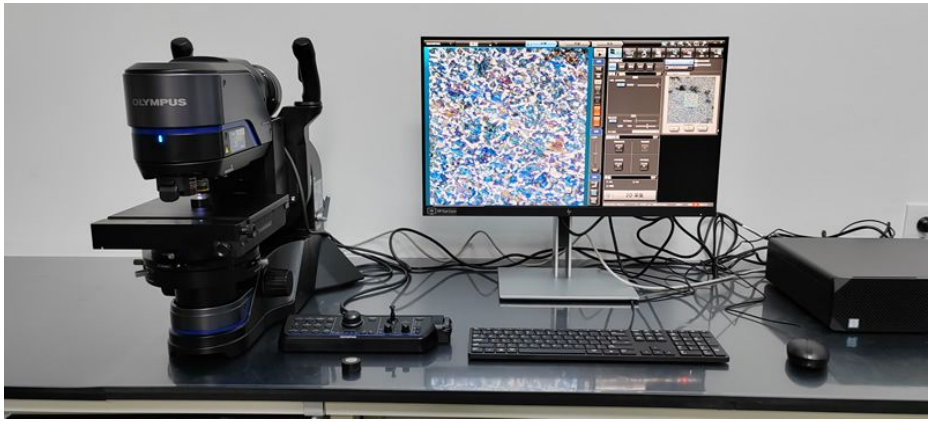
CHONGQING UNITED TECHNOLOGY INC.

Chongqing United Technology Inc. is a company specializing in supplier quality management and international trade. The firm, founded in 2002, has distinguished itself in product quality, business integrity, and customer support, especially in its collaboration with CMT Imports in Ohio, USA. It excels in supplier quality management, conducting effective quality audits and offering continuous improvements while adhering to industry standards. Their in-house laboratory and collaborations with third-party testing facilities ensure comprehensive product measuring and testing capabilities.

Project Sponsor and Project Goal



CHONGQING UNITED TECHNOLOGY INC.

- Project Name: Product Order Management System (POMS) for Chongqing United Technology Inc.

- Client Sponsoring Professional and Title:
  - Wang, Hongjie
  - President of Chongqing United Technology Inc.

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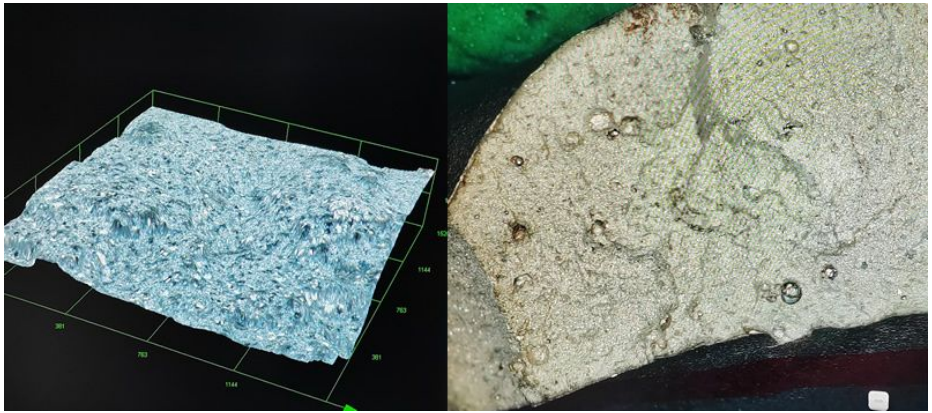
Project Sponsor and Project Goal



CHONGQING UNITED TECHNOLOGY INC.

- Project Goal: The goal of this project is to develop a POMS to address the business problem of inefficient order and production management within our company. Currently, we face challenges in tracking and processing client orders, managing inventory, and ensuring timely delivery. The opportunity lies in streamlining these processes, enhancing client satisfaction, and improving overall operational efficiency.

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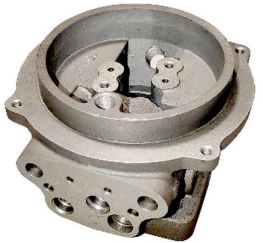
Project Objectives

02

Project Deliverables and Metrics

- This project entails the design and development of a Product Order Management System (POMS). The system will encompass various modules, including order placement, inventory management, order tracking and reporting by using both Python and SQL Database designer to connect with each other.

- 1. Establish the order product database with both logical and relational model.
  - Measurement: Full version due by October 24th, 2023
- 2. Establish the ETL function and incremental ETL test for the database warehousing.
  - Measurement: Full version due by November 7th, 2023
- 3. Establish the Data Visualization function.
  - Measurement: Full version due by November 21st, 2023
- 4. Establish a Power BI Dashboard to query the order information.
  - Measurement: Full version due by November 30th, 2023



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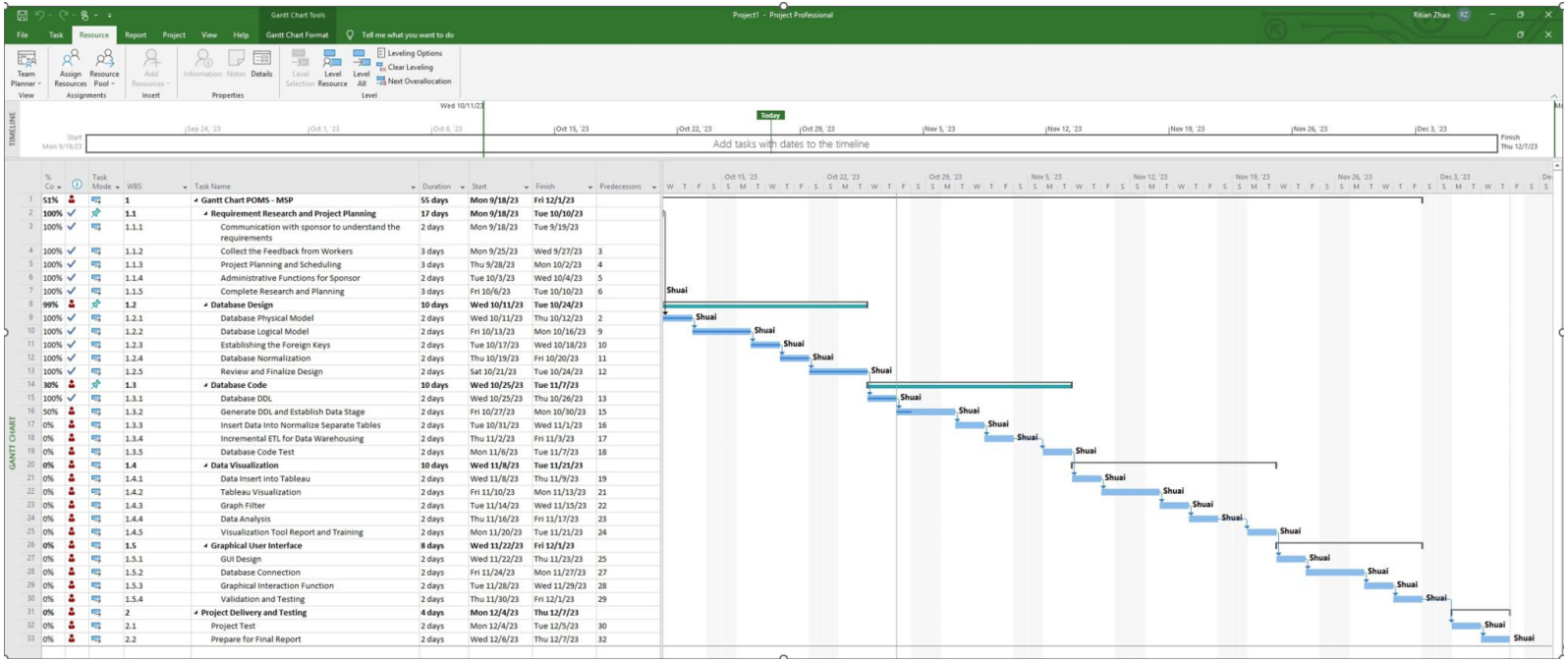
PROJECT GANTT TIMELINE



Project Chronology

- Requirement Research and Project Planning (17 days, 9/18 - 10/10):
  - The project kicked off with intensive communication with the sponsor to understand the requirements, followed by gathering feedback from workers, which informed the project planning and scheduling.
  - Then the Literature Survey provides a synthesis of current knowledge and practices in technology adoption and system development.
  - Finally Evaluating the Alternative Solution Criteria and Risk Analysis to choose the Design.
- Database Design (10 days, 10/11 - 10/24):
  - The design phase involved creating the physical and logical models of the database and establishing foreign keys, followed by database normalization and design finalization.
- Database Code (10 days, 10/25 - 11/7):
  - Coding the database involved writing DDL scripts, establishing data stages, and normalizing separate tables.

Project Chronology

- Data Visualization (10 days, 11/8 - 11/21):
  - Data visualization efforts included inserting data into Power BI, creating visualizations, applying graph filters, and performing data analysis.
- Power BI Management Dashboard (8 days, 11/22 - 12/1):
  - The Dashboard design phase led to the creation of a user interface that allows for database connection and graphical interaction. Validation and testing were conducted to ensure functionality and user-friendliness.
- Project Delivery and Testing (4 days, 12/4 - 12/7):
  - The final stretch involved rigorous project testing and preparation for the final report. This phase was executed smoothly, with no significant issues encountered, thanks in part to the testing conducted in previous phases.

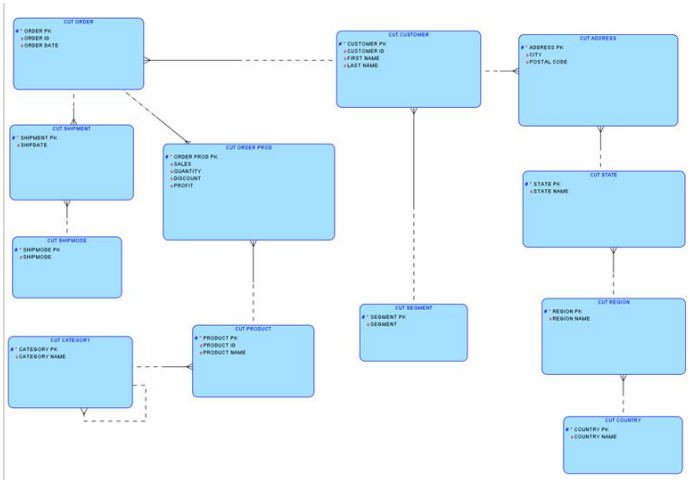
Project Results

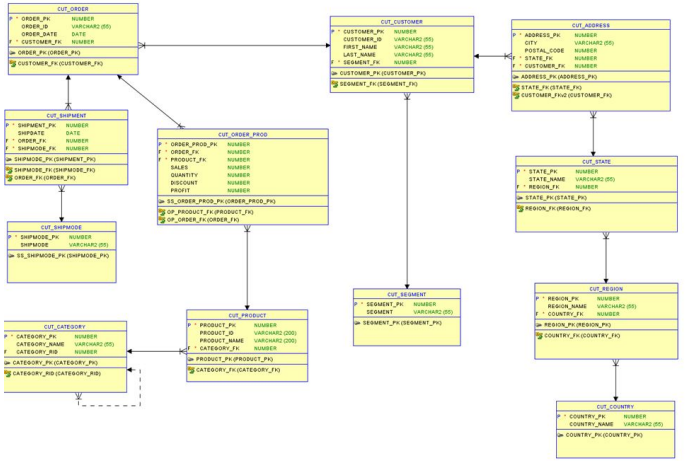
03

Objective #1

- **Establishing an Oracle-based order product database is essential for organizing and managing order data efficiently in the management system.**

- **This database will structure order-related information in logical and relational models, enhancing data integrity and facilitating easy access and manipulation of data. It would be crucial for streamlined order processing and decision-making.**





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Objective #2

- **The implementation of an ETL function and incremental ETL testing ensures the data warehouse is regularly updated and accurate.**

- **This integration is vital for the management system as it automates the regular updating of data, maintaining the freshness and reliability of information crucial for business analytics and reporting.**

	A	B	C	D	E
1	rownu	tableuniqueid	categoryid	StatusCode	StatusChangeDateTime
2	1	8753242	147	Completed	05/01/2018 18:01:01
3	2	8750676	147	Corrections Made	12/12/2017 06:38:48
4	3	8750676	147	Under Review	12/11/2017 05:38:48
5	4	8750676	147	Completed	24/10/2017 08:49:48
6	5	8743643	147	Under Review	28/05/2017 17:00:03
7	6	8742854	147	Completed	16/05/2017 15:12:54
8	7	8742789	147	Under Review	15/05/2017 14:07:34
9	8	8251415	147	Completed	30/12/2015 14:07:15
10	9	8250395	147	Not Assessed	08/12/2015 03:30:04
11	10	8250189	147	Completed	07/12/2015 15:40:57
12	11	8246264	147	Not Assessed	06/10/2015 02:30:03
13	12	8246093	147	Completed	05/10/2015 15:40:48
14	13	8246056	147	Not Assessed	05/10/2015 02:30:01
15	14	8242622	147	Completed	03/09/2015 11:20:16
16	15	7772727	147	Not Assessed	25/08/2015 19:31:08
17	16	520346	147	Not Assessed	08/01/2013 20:14:12
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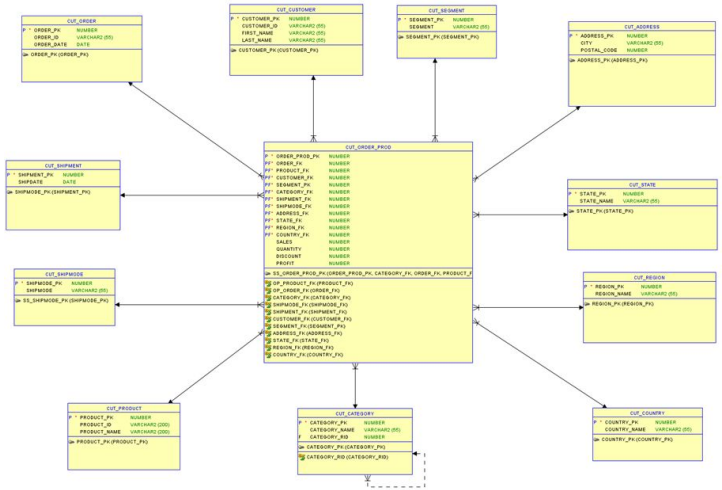
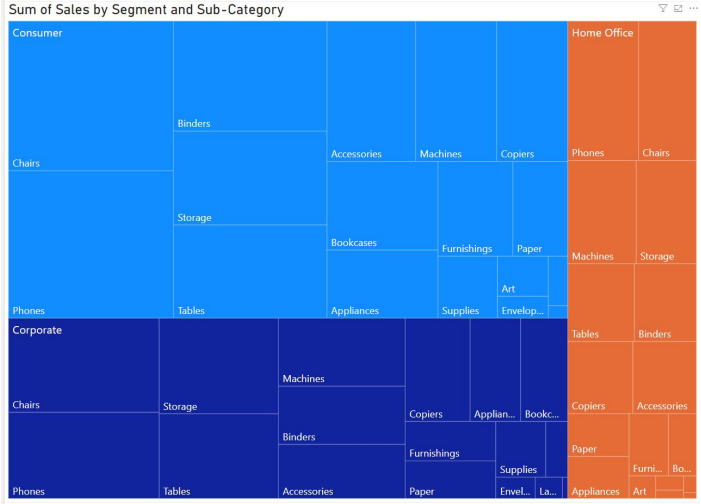
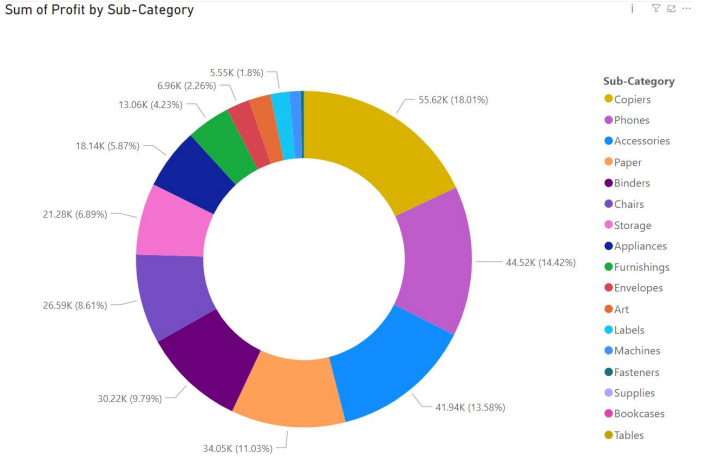


Objective #3

- **Developing a data visualization function using POWER BI is a strategic move to enhance the interpretability of complex data within the management system.**

- **This tool will enable the creation of intuitive, interactive visualizations, making it easier for decision-makers to understand trends, patterns, and insights derived from order data.**





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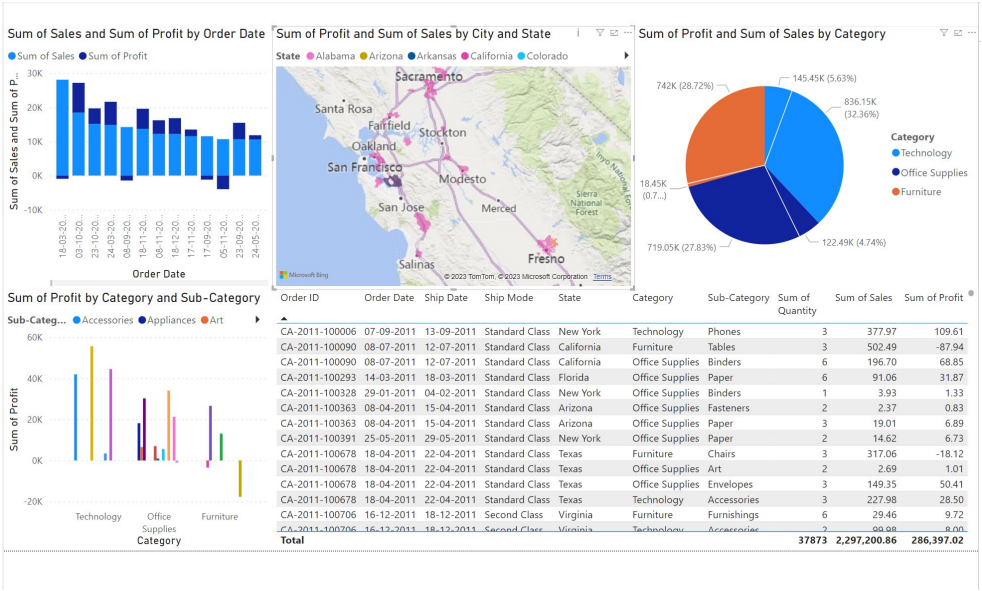
Objective #4

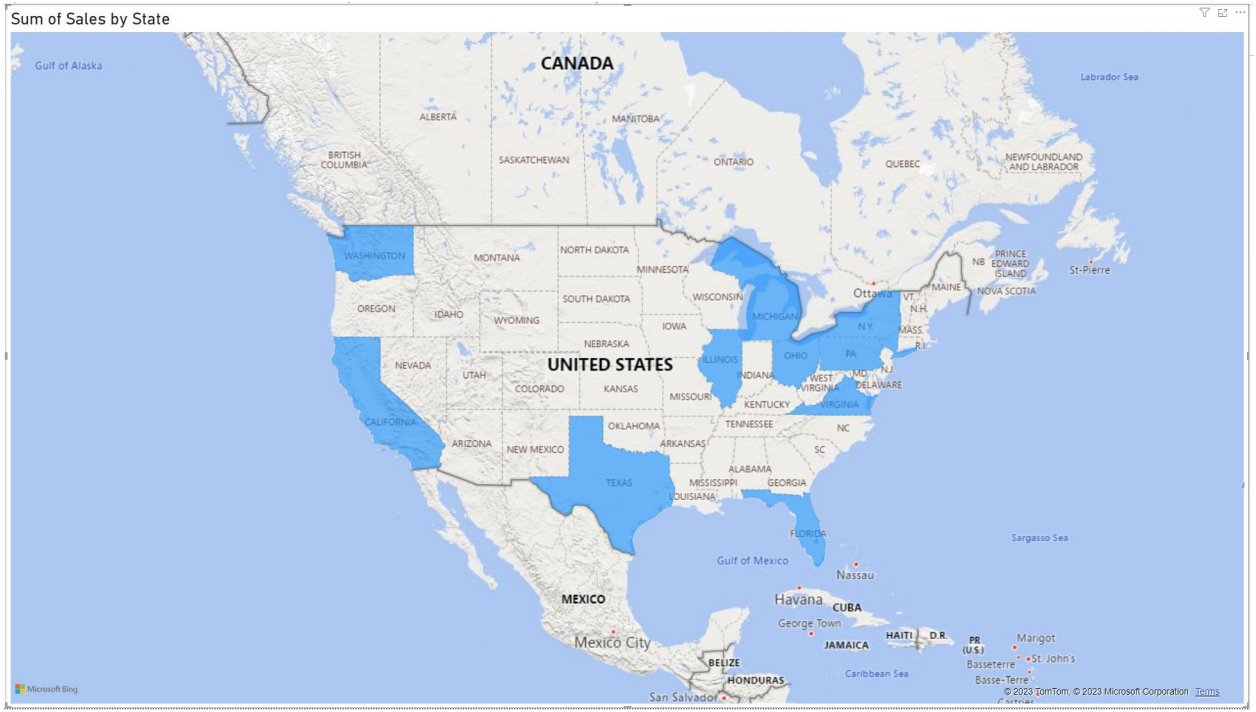
- **Setting up a POWER BI dashboard specifically for querying order information streamlines data access and analysis in the management system.**

- **This dashboard will provide a centralized, user-friendly interface for quickly retrieving and reviewing detailed order data, improving operational efficiency and responsiveness.**



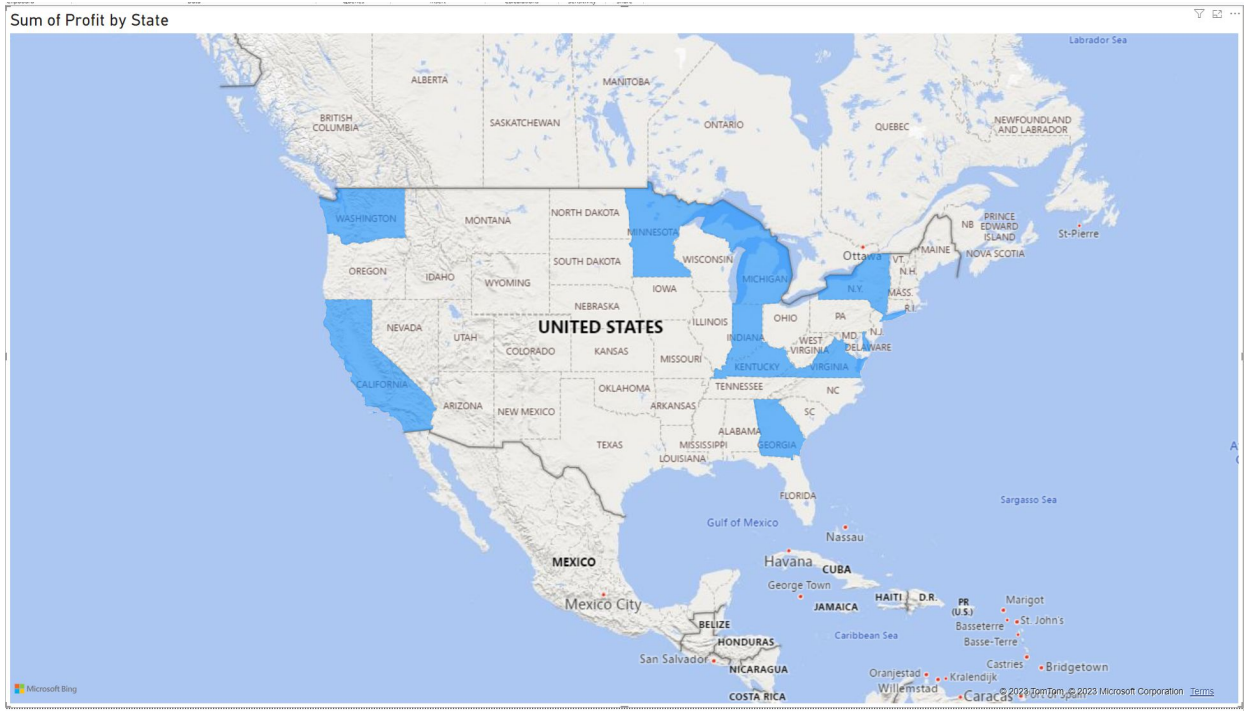
GEOGRAPHICAL

State	Sum of Sales
California	457687.6
New York	310876.3
Texas	170188
Washingto	138641.3
Pennsylvar	116511.9
Florida	89473.71
Illinois	80166.1
Ohio	78258.14
Michigan	76269.61
Virginia	70636.72



GEOGRAPHICAL

State	Sum of Profit
California	76381.39
New York	74038.55
Washingto	33402.65
Michigan	24463.19
Virginia	18597.95
Indiana	18382.94
Georgia	16250.04
Kentucky	11199.7
Minnesota	10823.19
Delaware	9977.375



GEOGRAPHICAL

- California and New York are leading both in sales and profit, indicating strong market presence and operational efficiency. These states are known for their large economies and diverse markets, which could contribute to higher sales and profits.
- Texas, Pennsylvania, Florida, Illinois, and Ohio show a significant discrepancy between high sales and LESS profit. This could suggest either high operational costs or pricing strategies that focus on volume over margin.
- Washington, Michigan, and Virginia show a more balanced relationship between sales and profit, though the profit figures are substantially lower than their sales figures. This could indicate a healthier balance between revenue generation and cost management in these states.

GEOGRAPHICAL

- The varied performance across these states suggests that regional factors, market size, and operational strategies significantly influence the profitability of sales in different areas. For instance, states with large urban centers like California and New York tend to have higher sales and profits, possibly due to greater market opportunities and consumer spending power.

- The East and West Coasts show more similarity in terms of high sales and profit, while the Middle States present a contrast with high sales but lower profit margins. This indicates regional differences in market characteristics, consumer behavior, and operational efficiencies.

SUMMARY

- In summary, our data analysis from 2020 to 2022 highlighted a significant shift towards online sales and order management, primarily driven by the COVID-19 pandemic. The surge in e-commerce was notably higher along the East and West coasts of the United States, reflecting regional differences in consumer behavior and business adaptation to online platforms.
- This trend emphasizes the need for businesses to remain flexible in their sales strategies and adapt to evolving market conditions. The contrast between the increase in online sales on the coasts and the decrease in offline sales in central states underscores the geographical variations in consumer response and business resilience during challenging times.
- Further research indicates that offering discounts on similar products could be a more effective strategy in the middle states compared to the East and West coasts. This approach aligns with the observed purchasing patterns and preferences in these regions, suggesting that tailored promotional strategies could be key in optimizing sales performance across different geographical areas.

Conclusions and Recommendations

04

CONCLUSION

- The Product Order Management System (POMS) project for Chongqing United Technology Inc. culminated in the successful development and implementation of a comprehensive system tailored to the company's specific needs in order management and international trade. The custom-developed POMS effectively streamlined the company's order and production management processes. It includes modules for order placement, inventory management, production scheduling, order tracking, and reporting, all integrated into a seamless system. This integration has led to improved operational efficiency, reduced manual errors, and enhanced overall productivity.
- It was a multifaceted endeavor that challenged and expanded my capabilities in system development, data analysis and project management. From the initial conception to the final deployment, each phase of the project was marked by a strategic blend of meticulous planning, technical development, and continuous learning.

LIMITATIONS

- **Programmer Expertise: The project assumes the availability of skilled programmers familiar with the necessary technologies.**
- **Technology Stack: The POMS will be developed using a specific technology stack decided upon initial consultations. Alternative technologies, even if they offer certain advantages, will not be used unless specified.**
- **Client Availability: While regular interactions with the client are crucial, it's assumed based on initial discussions that the client will be available for bi-weekly meetings and ad-hoc discussions.**
- **Tools and Techniques: Specific tools for analysis and development will be used based on their compatibility with the company's existing infrastructure and the project's requirements.**
- **Budget: There might be a fixed budget allocated for the project, constraining certain choices in terms of technologies or additional features.**

LESSONS LEARNED

- In the realm of project management, the project underscored the importance of meticulous planning, scheduling, and task coordination. I learned to adapt project plans dynamically to accommodate unexpected changes and to ensure that deliverables were completed within the set timeframe.

- The adoption of Agile methodologies was a significant learning curve that allowed for greater flexibility and responsiveness to changing requirements. The iterative process of development, coupled with regular feedback, was instrumental in refining the POMS to meet the sponsor's needs precisely. Effective communication and stakeholder management were paramount throughout the project. Engaging with the sponsor and incorporating feedback from workers taught me the value of active listening and collaboration in achieving project objectives.

RECOMMENDATIONS

- For future projects within the capstone courses, a primary recommendation is to allocate additional time for students to engage with sponsors and thoroughly understand the actual needs and requirements before the semester schedule of the standard 14-week. This extended preliminary phase would allow for deeper initial research, fostering a more comprehensive understanding of the sponsor's industry, competitive landscape, and specific challenges.

Thank you.

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