PowerBI Dashboard for ServiceNow and Azure DevOps Integration

Sponsor: Denver International Airport

Organized By: Data Science Student Association, CU Boulder

Team Name: Tech Titans

Team Members:

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Problem Statement

- Denver International airport being the third busiest airport in the U.S is the Largest airport site in North America.
- It handles 77M passengers and 280M lbs of cargo per year and contributes $36 billion annually to the Denver metropolitan area.
- Data analytics customers use ServiceNow to track enhancement requests.
- ServiceNow lacks real-time status updates on enhancement progress.
- Customers need better visibility into the status, completion progress, and timelines for their requests.

Introduction

We developed a PowerBI dashboard to integrate ServiceNow (AskIT) enhancement requests with Azure DevOps (ADO) tasks, providing insights for customers and the development team.

Key Goals:

Tracking: Keep customers updated on request progress and timelines.

Resource Optimization: Visualize developer workload and cross-team dependencies for better planning.

Enhanced Collaboration: Align ServiceNow requests with Azure DevOps tasks for improved transparency and execution.

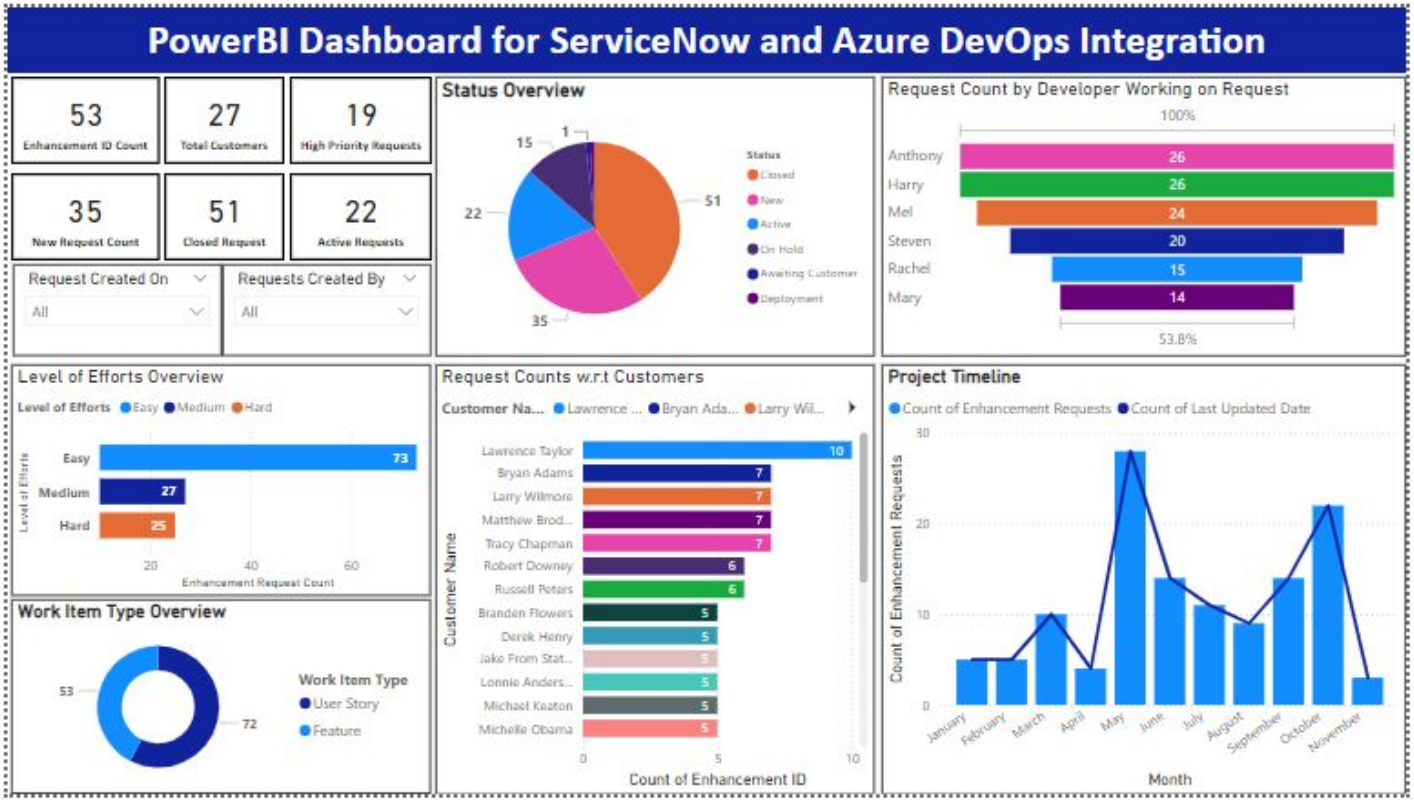
Approach

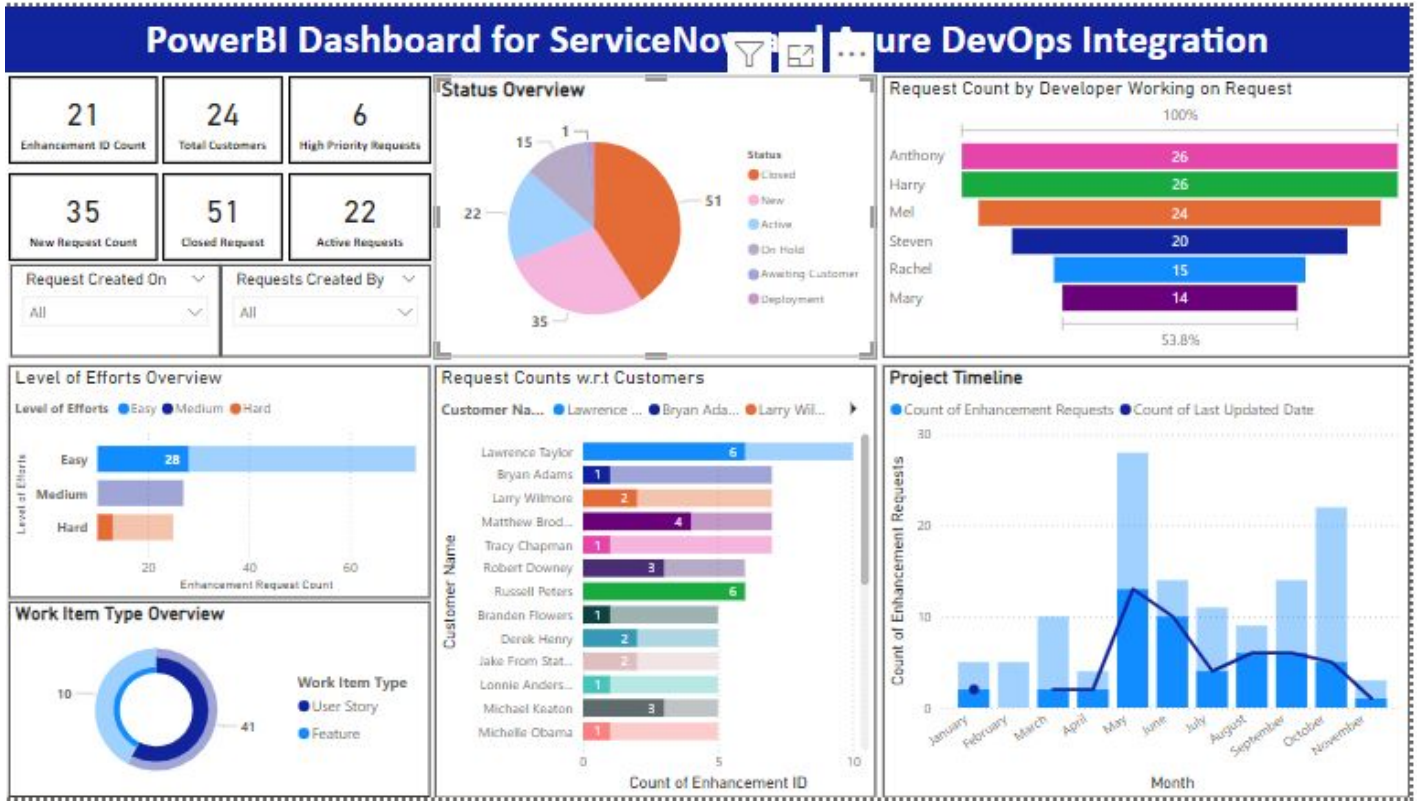
Our approach combines data integration, automation, and priority-driven insights to streamline request tracking and workload management. By integrating ServiceNow (AskIT) and Azure DevOps (ADO) data, we've created a unified view of enhancement requests and development tasks. We incorporate priority-based timelines and cross-team dependency analysis, enabling tailored target dates and optimal resource allocation. This approach not only enhances transparency but also aligns customer expectations with developer capabilities, ensuring efficient, responsive service delivery in a high-demand industry.

DATA CLEANING:

1. Dataset Integration and Cleaning:
   - Combined two datasets using similar values in the status columns.
   - Removed redundant columns like Enhancement Number, Azure DevOps ID, Customer Name, and Developer.
2. Manager and Task Assignment:
   - Created a new Manager column to assign work to employees.
   - Ensured efficient task distribution and management through this addition.
3. Due Date and Target Date Calculation:
   - Developed a custom function to calculate due dates and target dates.
   - Considered factors such as 'Level of Effort,' 'Priority,' and 'Updated Time' for accurate computation.
4. Enhanced Data Insights:
   - Added 'Cross Team Dependency,' 'Stakeholder Group,' and 'Short Description' columns.
   - Used NLP to extract keywords for the 'Short Description' to summarize content effectively.

Dashboard for ServiceNow and Azure DevOps Integration




PowerBI Dashboard for ServiceNow and Azure DevOps Integration
21
Enhancement ID Count
24
Total Customers
6
High Priority Requests
35
New Request Count
51
Closed Request
22
Active Requests
Request Created On
All
Requests Created By
All
Status Overview
15
1
22
51
35
Status
Closed
New
Active
On Hold
Awaiting Customer
Deployment
Request Count by Developer Working on Request
100%
Anthony
26
Harry
26
Mel
24
Steven
20
Rachel
15
Mary
14
53.8%
Level of Efforts Overview
Level of Efforts
Easy
Medium
Hard
Level of Efforts
Easy
28
Medium
Hard
20
40
60
Enhancement Request Count
Work Item Type Overview
10
41
Work Item Type
User Story
Feature
Request Counts w.r.t Customers
Customer Na...
Lawrence ...
Bryan Ada...
Larry Wil...
Lawrence Taylor
6
Bryan Adams
1
Larry Willmore
2
Matthew Brod...
4
Tracy Chapman
1
Robert Downey
3
Russell Peters
6
Brandon Flowers
1
Derek Henry
2
Jake From Stat...
2
Lonnie Anders...
1
Michael Keaton
3
Michelle Obama
1
Customer Name
0
5
10
Count of Enhancement ID
Project Timeline
Count of Enhancement Requests
Count of Last Updated Date
30
20
10
0
Count of Enhancement Requests
January
February
March
April
May
June
July
August
September
October
November
Month

1. Request Status Analysis: :

- Analyzed the request status to identify who raised the request and the assigned person responsible for resolving the issue.

2. Level of Effort Classification:

- Categorized the level of effort into distinct groups using categorical encoding.

3. Data Classification and Title Extraction:

- Differentiated the data into User Story and Feature categories.

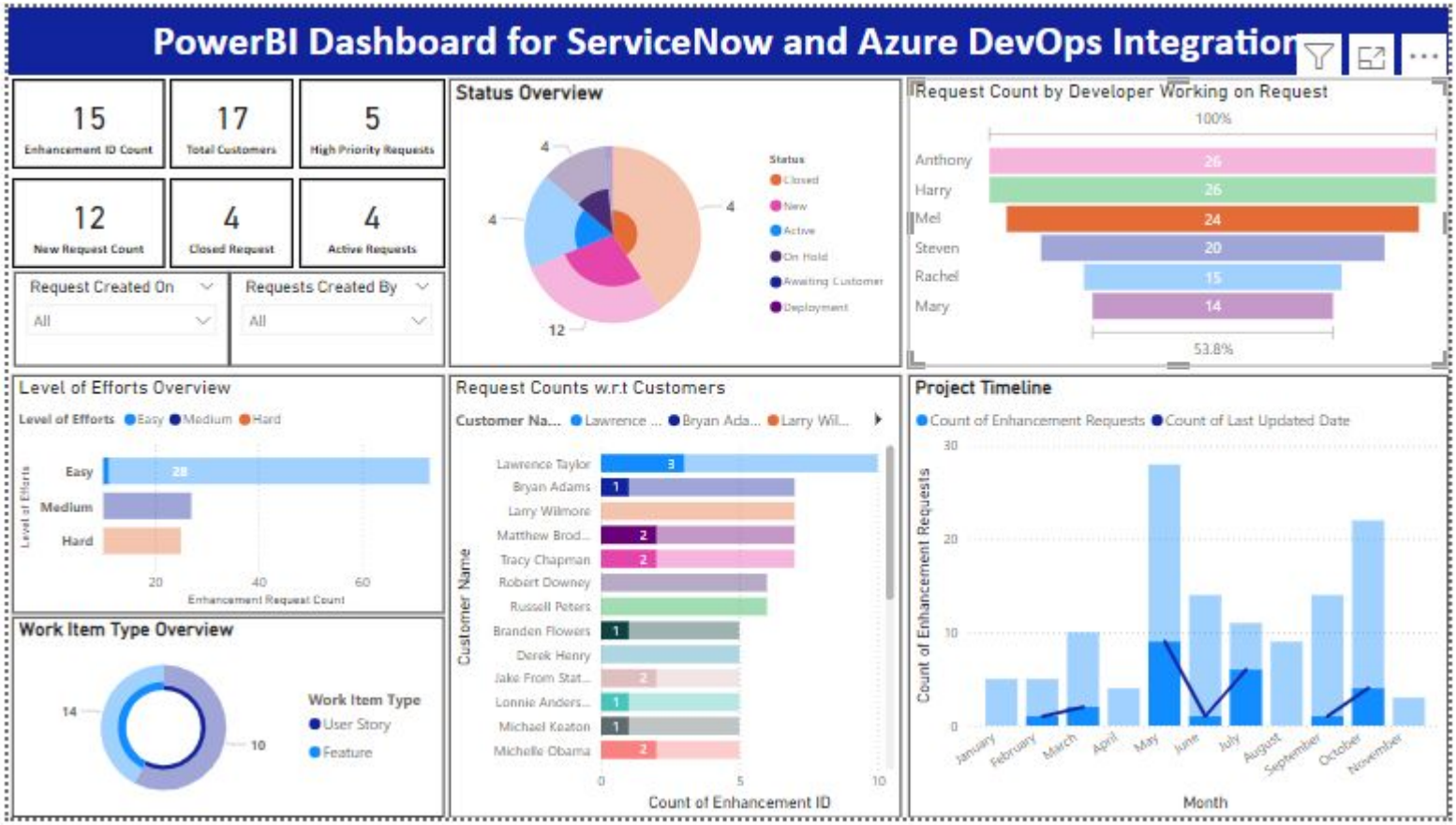
- Extracted and summarized titles for each category.

4. Project Timeline Visualization:

- Plotted a project timeline showing enhancement request numbers and counts based on the last updated date.

5. Target and Due Date Computation:

- Calculated target and due dates by comparing various factors like request status, level of effort, and priority.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Project Timeline Analysis

This graph shows monthly trends in enhancement requests and updates:

- Enhancement Requests (Light Blue Bars): Peaks in May indicate a high demand period.
- Updates (Dark Blue Line): Spikes in June, July, and October reflect active periods for request processing.

Key Insights:

- High Demand in May suggests seasonal or project-driven needs.
- Active Processing in June, July, and October indicates focused efforts to address requests.

This timeline helps align resources with demand and prioritize workloads effectively.

THANK YOU!