Conestoga College

School of Applied Computer Science & Information Technology

PROG8630 – Dashboard Proposal

Amazon (IT Department)

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Group 3

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# Introduction

Amazon is one of the world’s largest e-commerce and cloud services providers, and its IT department is responsible for maintaining the company's extensive infrastructure. This includes overseeing systems such as Amazon Web Services (AWS), databases, and corporate IT functions. The dashboard will focus on key performance areas to help manage the day-to-day operations of the IT team.

# Company

The IT department is at the heart of Amazon’s technological operations, ensuring that systems are up and running efficiently. This proposal aims to outline the creation of a dashboard that will assist Amazon’s IT department in monitoring key metrics. By answering business-critical questions, the dashboard will provide insights into IT performance, helping optimize operations and make data-driven decisions.

Business Questions to Address:

1. How quickly are IT issues being resolved, and how can the team minimize downtime?
2. What is the current utilization of infrastructure, and is there any need for scaling?

# Need

The IT department plays a critical role in ensuring business continuity at Amazon, particularly when systems experience high volumes of traffic or technical issues arise. The proposed dashboard will provide a consolidated view of key IT metrics, allowing for proactive issue management, real-time monitoring, and improved service levels (Wright, 2023).

Key Performance Indicators (KPIs):

1. **Mean Time to Resolution (MTTR):** The average time it takes to resolve technical issues.
2. **System Uptime Percentage:** The amount of time systems remain operational and free from outages.
3. **Incident Volume:** Number of incidents logged over time (Woolf, 2014).
4. **Infrastructure Utilization:** The percentage of server, CPU, and storage use across IT resources.

# Persona

**Persona 1: IT Support Specialist**

* **Description**: An IT support specialist responsible for resolving technical issues faced by employees across the organization. This role is often the first point of contact for IT-related queries, playing a critical part in maintaining employee productivity.
* **Prototype Skills**:
  + **Technical Skills**: Proficient in troubleshooting hardware and software issues, familiar with operating systems (Windows, macOS, Linux), and knowledgeable in basic networking.
  + **Customer Service Skills**: Strong communication skills to effectively assist users with varying levels of technical knowledge.
* **Knowledge**:
  + **IT Support Tools**: Experienced with ticketing systems (e.g., ServiceNow), remote support tools, and knowledge management systems.
  + **Common IT Issues**: Well-versed in common problems related to hardware malfunctions, software installations, and connectivity issues.
* **Experience**:
  + **Professional Background**: Over three years of experience in IT support, focusing on resolving user-reported issues and maintaining IT documentation.
  + **Continuous Learning**: Engages in regular training sessions and certifications to stay updated on the latest technologies and support practices.

**Persona 2: Systems Analyst**

* **Description**: A systems analyst who analyzes data and system performance to optimize IT operations. This role collaborates with various departments to understand their needs and implement effective solutions.
* **Prototype Skills**:
  + **Analytical Skills**: Strong ability to interpret and analyze data, identify trends, and generate actionable insights.
  + **Technical Proficiency**: Familiar with data visualization tools (e.g., Tableau, Power BI) and database management.
* **Knowledge**:
  + **IT Infrastructure**: Comprehensive understanding of system architecture, performance metrics, and infrastructure components.
  + **Project Management**: Knowledge of agile methodologies and project management practices to effectively manage IT initiatives.
* **Experience**:
  + **Professional Background**: Five years of experience as a systems analyst, with a proven track record of optimizing IT systems and processes.
  + **Collaboration**: Experience working with cross-functional teams to gather requirements and implement IT solutions.

**Persona 3: Network Engineer**

* **Description**: A network engineer tasked with maintaining and optimizing the organization's network infrastructure. This role ensures reliable and secure connectivity for all employees.
* **Prototype Skills**:
  + **Networking Skills**: Proficient in configuring routers, switches, firewalls, and understanding networking protocols (e.g., TCP/IP, DNS).
  + **Security Knowledge**: Knowledgeable in cybersecurity practices and tools to safeguard the network from threats.
* **Knowledge**:
  + **Network Monitoring**: Familiar with network monitoring tools (e.g., Wireshark, SolarWinds) to analyze traffic and detect issues.
  + **Troubleshooting**: Expertise in diagnosing and resolving network-related problems efficiently.
* **Experience**:
  + **Professional Background**: Over four years of experience as a network engineer, focusing on maintaining enterprise-level networks.
  + **Certifications**: Holds industry-recognized certifications (e.g., CCNA, CompTIA Network+) that demonstrate expertise in networking.

# Data Source

The data for the Amazon IT Department dashboard will be derived from both actual and simulated sources. Simulated data will be used initially to prototype the dashboard and test the functionality before connecting to live data sources. Below is a breakdown of the simulated data that will be used:

1. **Simulated Incident Data (ServiceNow)** (Olaoye, 2023)**:**  
   A dataset containing a list of IT incidents over a 6-month period. Each entry includes:
   * **Incident ID** (e.g., INC001, INC002)
   * **Time Logged** (e.g., 2024-01-15 14:30:00)
   * **Time Resolved** (e.g., 2024-01-15 16:00:00)
   * **Incident Type** (e.g., Server Failure, Network Downtime)
   * **Priority** (e.g., High, Medium, Low)
   * **Resolved By** (e.g., Support Engineer ID)
   * **MTTR (Mean Time to Resolution)** calculated from time logged and time resolved for each incident.
2. **Simulated System Uptime Data (AWS CloudWatch)** (SheWrites, 2023)**:**  
   A dataset simulating the availability of Amazon’s internal systems over a 30-day period. Data fields include:
   * **Date** (e.g., 2024-02-01)
   * **System ID** (e.g., SYS001, SYS002)
   * **Uptime Percentage** (e.g., 99.95%, 99.99%)
   * **Downtime in Minutes** (e.g., 5 minutes)
   * **Number of Downtime Events** (e.g., 2 incidents).
3. **Simulated Infrastructure Utilization Data (AWS CloudWatch):**  
   This dataset will contain information about resource usage across Amazon’s IT infrastructure over a 1-month period. Data fields include:
   * **Server ID** (e.g., SERVER001, SERVER002)
   * **CPU Utilization (%)** (e.g., 75%, 85%)
   * **Memory Utilization (%)** (e.g., 60%, 70%)
   * **Storage Utilization (GB)** (e.g., 500 GB out of 1 TB capacity)
   * **Network Throughput (Mbps)** (e.g., 150 Mbps).
4. **Simulated Customer Satisfaction (CSAT) for IT Services:**  
   A dataset simulating feedback from internal customers using IT services. Each record will contain (Plancque, 2023):
   * **Date** (e.g., 2024-03-05)
   * **Service Used** (e.g., Email Service, Database Access)
   * **Satisfaction Score** (e.g., 4/5, 5/5)
   * **Comments** (e.g., "Quick resolution," "System downtime too frequent").

# Target Audience

**Persona 1: IT Support Specialist**

* **Age**: 28
* **Hobbies**: Gaming, attending tech meetups, and building PCs.
* **Motivation and Goals**:
  + Resolve IT issues efficiently to minimize downtime for employees.
  + Stay updated on the latest technology trends and tools.
  + Achieve recognition within the team for excellent customer service.
* **Skills and Abilities**:
  + Strong problem-solving skills and technical knowledge of hardware and software.
  + Proficient in using ticketing systems and troubleshooting tools.
  + Excellent communication skills to interact with non-technical staff.
* **Usage of Dashboard**: Needs a dashboard to track open and resolved tickets, view system performance metrics, and monitor recurring issues to improve response times.

**Persona 2: Systems Analyst**

* **Age**: 35
* **Hobbies**: Reading tech blogs, participating in online coding challenges, and hiking.
* **Motivation and Goals**:
  + Analyze data to optimize system performance and reliability.
  + Collaborate with cross-functional teams to implement IT solutions.
  + Advance their career by leading significant IT projects.
* **Skills and Abilities**:
  + Strong analytical skills and proficiency in data analysis tools.
  + Knowledgeable in system architecture and performance metrics.
  + Ability to communicate complex data insights to stakeholders.
* **Usage of Dashboard**: Requires a dashboard to visualize system performance metrics, analyze downtime patterns, and track project progress against KPIs.

**Persona 3: Network Engineer**

* **Age**: 30
* **Hobbies**: Networking, attending conferences, and volunteering in community tech workshops.
* **Motivation and Goals**:
  + Ensure network reliability and security for seamless operations.
  + Implement innovative network solutions to support business growth.
  + Continuously improve skills through certifications and training.
* **Skills and Abilities**:
  + Expertise in network design, configuration, and security protocols.
  + Proficient in network monitoring tools and diagnostic software.
  + Strong troubleshooting and communication skills.
* **Usage of Dashboard**: Needs a dashboard to monitor network performance, track bandwidth usage, and analyze latency issues to maintain optimal network conditions.