

MICHIGAN STATE

UNIVERSITY

Project Plan Presentation

IT Datamart Microservice for BitBucket

The Capstone Experience

Team UWM

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Michigan State University

Spring 2024



*From Students...
...to Professionals*

Project Sponsor Overview

- Nation's #1 Mortgage Lender
- Founded in 1986 – headquarters in Pontiac, MI
- Net Income of \$931.9 million in FY 2022



Project Functional Specifications

- UWM has very large data sets being constantly generated – such as Git metadata
- This project assists UWM in analyzing risks
- Increases their ability to make informed business decisions
- Will be implemented throughout the production and deployment of various technologies



Project Design Specifications

- Integrate into larger collection system at UWM
- Metadata consolidation for UWM Git repositories
- Cleaning and processing of large data sets for further use
- Set up SQL database that can be used for data visualization, as well as further developments of other projects



Screen Mockup: Developer View

UWM
UNITED WHOLESALE MORTGAGE

The purpose of this project is to provide an interface for our software that provides value to our customers and associates.

Our internal teams have made the decision that this is necessary to increase efficiency.

Project Name - Fast Crab
Start Date - 10/5/23
End Date - 12/12/24

Team Members:
- John Joe
- Jimmy Jack
- Jim Jam
- Justin Time
- Steven Cart

*Developer View For:
John John*

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mon												
Wed												
Fri												

Past Contributions

Tasks

Contribution Info: Commit #295923

Time: 10/4/22 3:45.252 PM
Number of Lines Changes: 345
Pushed To: Alpha Branch
Committed by: John John

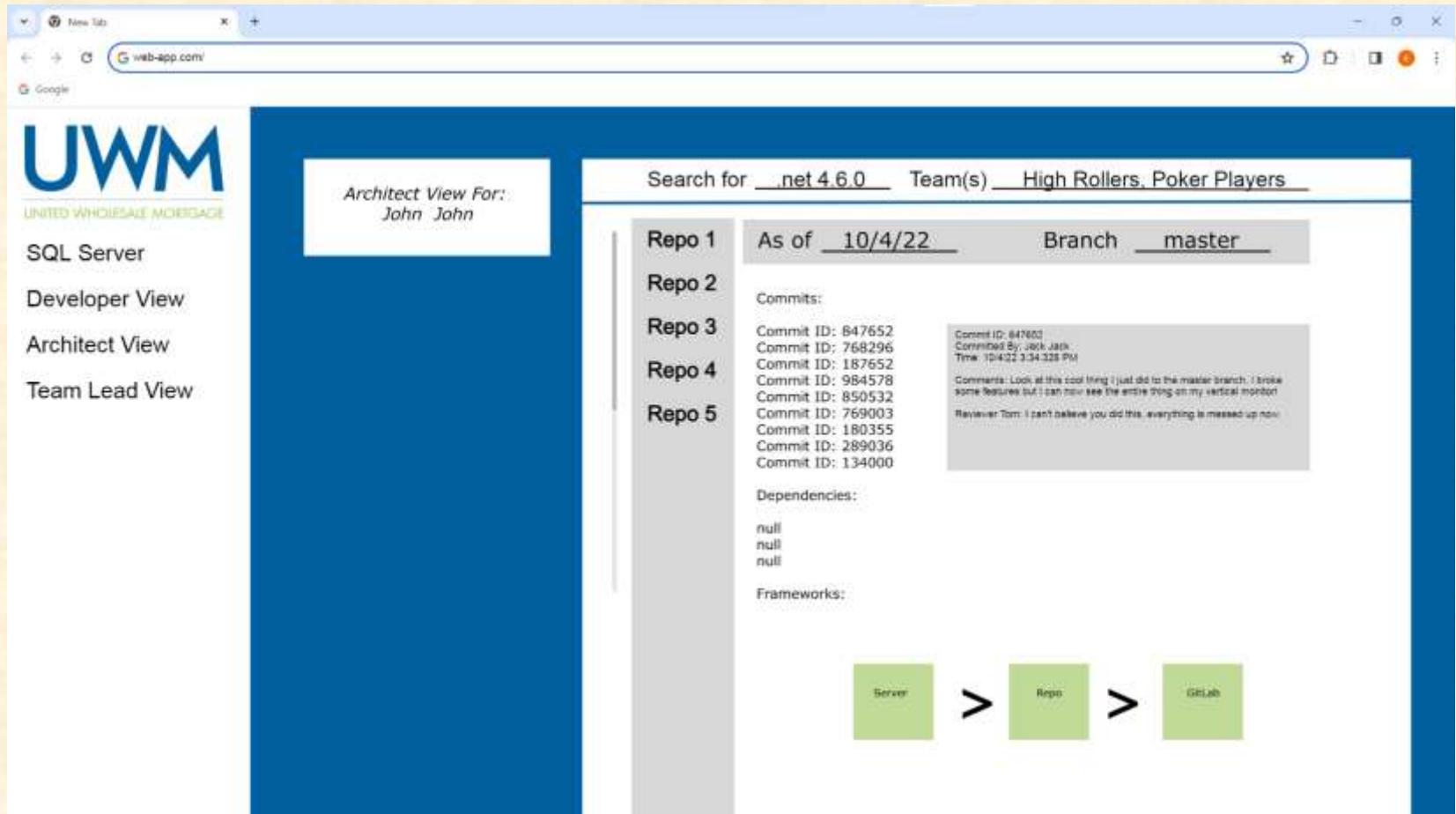
Comments: In these changes, I created new features for our software that allows users to do the things they need to do better and faster.
Reviewer Jack: Yeah this all works and is looking good.
Reviewer Tom: I think this is okay.

Contribution Info: Commit #597531

Time: 10/4/22 3:50.492 PM
Number of Lines Changes: 30
Pushed To: Alpha Branch
Committed by: John John



Screen Mockup: Architect View



Screen Mockup: Team Lead View

UWM
UNITED WHOLESALE MORTGAGE

SQL Server
Developer View
Architect View
Team Lead View

Team Lead View For:
John John

Project / Repo Developers Project / Repo Branch

Name: John John
Project: Capstone
Contributions: 324

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Mon
Wed
Fri

Past Contributions

Tasks

Contribution Info: Commit #295923
Time: 10/4/22 3:45:25 PM
Number of Lines Changes: 345
Pushed To: Alpha Branch
Committed by: John John

Comments: In these changes, I created new features for our software that allows users to do the things they need to do better and faster.
Reviewer Jack: Yeah this all works and is looking good.
Reviewer Tom: I think this is okay.

Contribution Info: Commit #597531
Time: 10/4/22 3:50:49 PM
Number of Lines Changes: 30
Pushed To: Alpha Branch
Committed by: John John

```
import praw # <- This might be an issue for Jupyter
import json

# Reddit stuff
reddit = praw.Reddit(
    client_id="YrFp1dYw4B082imh1tSA",
    client_secret="pf_XtpPGgqijv8ch_Ibhvzv0jyxsg",
    user_agent="App by u/api-user482"
)

# Open News subreddit
subreddit = reddit.subreddit("news")

# Get top posts
top_post = subreddit.top(time_filter="year", limit=5)

# Create dictionary
data = {
    "title": [],
    "url": [],
    "utc_timestamp": []
}

# Add subreddit data to dictionary
for post in top_post:
    data["title"].append(post.title)
    data["url"].append(post.url)
    data["utc_timestamp"].append(post.created_utc)

# Create json file
from math import floor
```

Screen Mockup: SQL Server View

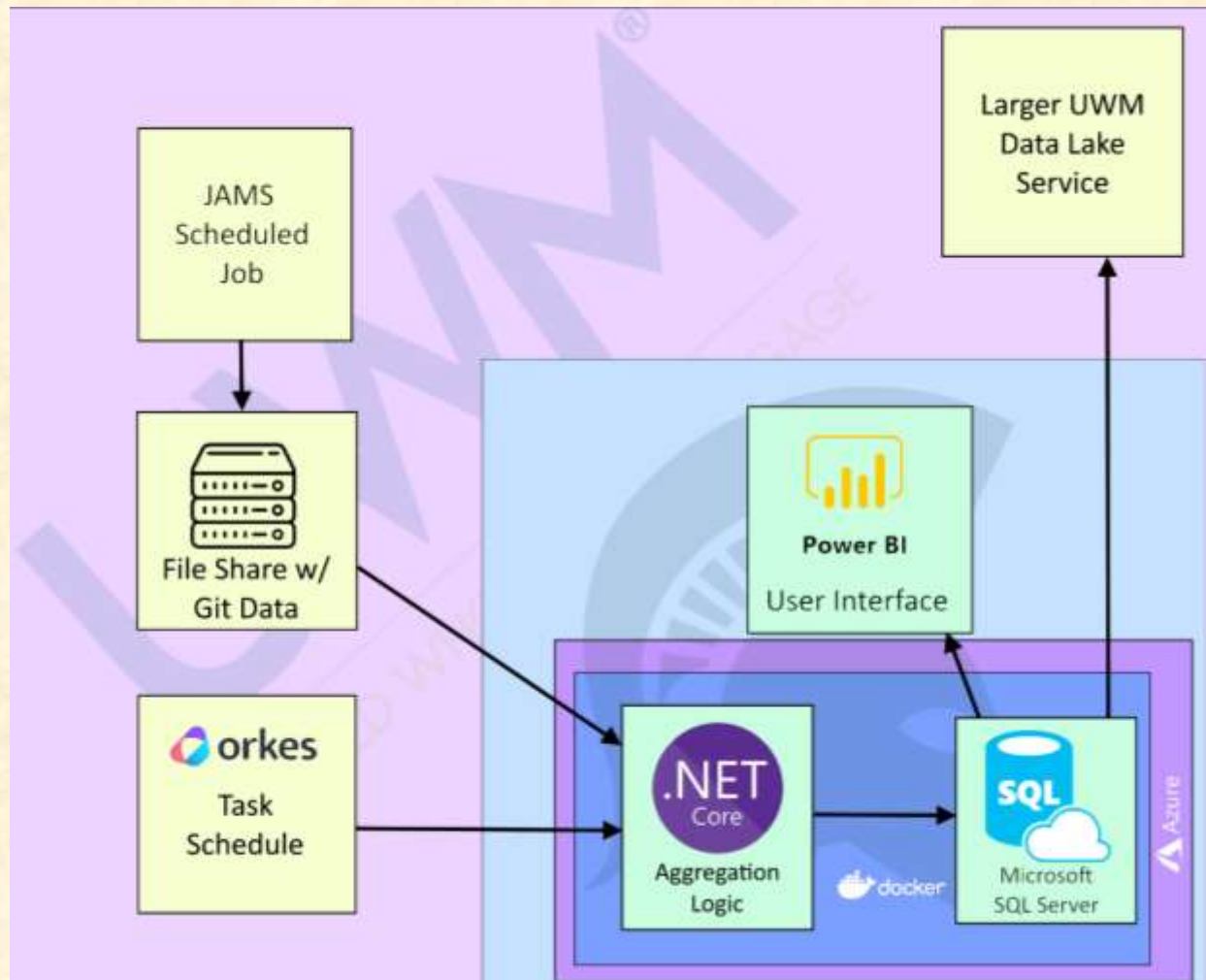


Project Technical Specifications

- Business aggregation logic using .NET micro-service
- Data pulled from file share server will be regularly exported using a schedule automation server
- After processing, data is stored in Microsoft SQL Server
- Data visualization ideally with Power BI



Project System Architecture



Project System Components

- Software Platforms / Technologies
 - .NET
 - Power BI
 - Microsoft SQL server
 - Docker
 - Orkes



Project Risks

Risks

- Subset of a Larger Project at UWM
 - We are one branch of a larger system that is being worked on and because of that we have strict design requirements
 - Closely coordinating with UWM team and requesting and reviewing documentation
- UWM Technology Requirements
 - Due to the nature of UWM's workflow, we have to use and stay completely within their systems and internal tools.
 - Campus visit and subsequent communications to establish and fully integrate our tools
- Scale
 - UWM is a massive company that handles massive amounts of money, there is no room for error
 - Design check-ins and approvals making sure UWM is aware of what we are doing and can give us systems that reduce harm that can be caused
- Security
 - UWM deals with people's personal financials which need to be away from public view or access at all times.
 - Security check-ins and documentation on how other teams at UWM operate to keep secure. As well using only internal tools and systems to prevent any possible issues



Questions?

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