Development of a Data Analytics Dashboard for Real-Time Business Insights

ITSU2006 IT Project Management
Assignment 2 – Project Report (Group)

Group Members and Their Roles

Name	Student ID	Role
Md Tahsin Sultan (Group Leader)	59517	Team Leader – Managing project planning, configuring boards in Jira, doing a final review, and submitting the project
Md Amdadul Haque	59753	Creating data, making a dashboard, setting up GitHub and making a Gantt chart
Md Khaled Saroar Joy	62532	Designing pivot charts, changing their format, taking screenshots and organising dashboards
Aryan Manishkumar	60303	Support for writing reports, confirming Gantt charts and making things look standardised

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Introduction

Today, if you want to make informed decisions, you need to visualise and interpret data as it is collected. For this group project, we will develop a dashboard that presents live insights from business data, turning the data collected into easily readable charts and graphs. My main goal was to create a real work environment by preparing, designing and demonstrating an Excel dashboard with mock sales and traffic data. They used a planned approach: created mock data with Mockaroo, visualised results using pivot charts, used GitHub for managing code versions and set out project milestones using a Gantt chart. All activities were carried out based on the main project management principles such as defining scope, managing risks and breaking down workflows. The project proved our technical and analytical abilities as well as our expertise in working together, organising tasks and speaking directly to ensure business intelligence systems are successful in IT environments.

Literature Review

Formulating a data analytics dashboard to instantly display business data is built on the main concepts in business intelligence (BI), fast processing and teamwork. According to Chen et al. [1], such systems provide up-to-date, key insights to decision-makers by sorting through vast datasets, analysing them and showing the results in visual form. Dashboards are essential BI tools that help you monitor KPIs in real time, so you can decide ahead of problems [2].

Stream processing and automatic data integration are major technologies used in real-time analytics, and their use has advanced greatly as cloud infrastructure has developed. Grolinger et al. [3] explain that cloud analytics tools help companies quickly handle large amounts of data, which makes them more responsive and flexible. In addition, good dashboard design focuses on keeping things simple, understandable and interactive for a pleasant user experience [4].

Using GitHub and similar tools for collaboration and version control aids in making the code visible, controlling the process of iteration and strengthening how accountable everyone is on a team. Integrating Jira into your agile system allows you to see and manage user stories, learn the progress of sprints and assign tasks, all for the sake of making the project more visible and efficient [6]. With Jira, the group was able to organise roles, talk more effectively and meet new project demands quickly.

Due to their use, the dashboard matched both current software development techniques and data visualisation rules, helping the organisation to make more informed choices.

[1] Chen, H., Chiang, R. H. L., & Storey, V. C. authored a journal article in 2012. From Big Data comes Big Benefit through Business Intelligence and Analytics. MIS Quarterly.

[2] Few, Stephen. (2006). Information Dashboard Design. O'Reilly Media.

[3] In 2013, Grolinger, Higashino, Tiwari and Capretz conducted the study. Managing data in the cloud: NoSQL and NewSQL options have been introduced. The Journal of Cloud Computing.

[4] Omer Yigitbasioglu and Ovidiu Velcu published this article in 2012. Analysis of the use of dashboards within performance management. The International Journal of Accounting Information Systems.

[5] Loeliger, J., & McCullough, M. wrote in 2012. Introduction to Version Control with Git. O'Reilly Media.

[6] Rubin, K.S. wrote the book in 2012. Essential Scrum: A Guide to the Most Used Agile Project Method. Addison-Wesley.

Task 1: Workflow Documentation

The team kicked off the project by planning together on the Jira platform. They decided to use a Kanban board where tasks, roles, milestones and progress could all be seen in one location. All members had their work assigned using Jira user stories and sprints, which encouraged openness and responsibility in the development process.

The initial step involved using Mockaroo to make a sample dataset. Among the attributes in the dataset were: date, product, region, units sold, price per unit, total revenue and website visitors. I imported the data into Excel, made sure all data was consistent and formatted it for pivot tables.

Following this, pivot charts were introduced to showcase the main findings about the business. We produced four visualisations for this project:

- Units Sold by Region
- Total Revenue by Product
- Monthly Revenue Trend
- Website Visitors Over Time

The charts were combined into a single Excel dashboard, using short and clear titles and little formatting to ensure everything was obvious. A Gantt chart was built in Excel to monitor how long tasks would take and how they are linked.

We put every file—screenshots, Excel files and drafts—in a GitHub repository to make sure others could compare versions and review them. The last part of the report features screenshots of the finished dashboard, Gantt chart, GitHub directory and Jira board.

GitHub Repository: MdAmdadulH/Data_Dashboard_Project

Using this process, team members could cooperate well, both changes could be traced, and the final product fulfilled the required standards.

Task 2: Project Charter

In this charter, we outline the project framework, aims and roles for developing a Data Analytics Dashboard that offers live insights into the company's activities. The assignment acts like a real-life BI project, where you process data, visualise it and show it in an orderly and cooperative way with Excel, Jira and GitHub.

Project Title:

Development of a Data Analytics Dashboard for Real-Time Business Insights

Purpose and Objective:

The purpose of this project was to rework raw business data into a professional and easily accessible dashboard using Excel pivot charts. Important information, such as units sold per region, revenue changes and web traffic, is presented on the dashboard. We were trying to prove our competency in visualising data, working with teams, and efficiently handling tasks and versions.

Project Scope:

- Generate sample datasets using Mockaroo
- Microsoft Excel should be used to prepare and clean the data.
- Build interactive pivot charts and a dashboard.
- Prepare a Gantt chart to show what needs to be done over the project schedule.
- Use GitHub to control your versions and manage files systematically.
- Collaborate with your team, track sprints and assign work using Jira.
- Put all your activities and outcomes into a clear and organised final report.

Stakeholders:

- Student Project Team (4 Members)
- Unit Facilitator (Supervisor)

Team Roles and Responsibilities:

- **Tahsin (Team Leader):** Coordinated the entire process, arranged the Jira board, completed the final integration and made the submission

- **Amdadul:** Roles include collecting data, generating dashboards, handling GitHub uploads and using Gantt charts.

- **Joy:** The main tasks include designing pivot charts, snapping screenshots, formatting data and setting up the layout.

- **Aryan:** Helped write reports, organise the timeline and maintain consistency.

Collaboration Tools:

We relied on Jira to assign jobs, monitor progress during sprints and balance work responsibility with a single Kanban board. You will find demonstrations of the Jira board, task statuses and Github repository in the Screenshots section to illustrate how we worked together and how we remain accountable.

Thanks to the charter, everyone knew where they were headed, divided their tasks fairly and stayed on track with both the project's goals and timeline.

Task 3: Gantt Chart

Good project management involves consistently visualising how tasks are timed and what affects them. To map the major phases and tasks, a Gantt chart was developed using Microsoft Excel, from the start of the project to its end. Showing our 6-day timeline in a chart allowed us to manage the project clearly and track every teammate's progress.

Each task's duration was calculated by adding the Duration Days to the Start Date, and these lengths were shown as bars stacked in the Gantt chart. With this, the bars showed each event or task correctly against the calendar's day and time. Every bar was marked with a different colour, and the vertical axis went from top to bottom to place the earliest tasks at the beginning, as in regular project management.

Tasks included:

- Project Planning
- Dataset Preparation
- Dashboard Design
- Report Writing
- GitHub Upload
- Final Review
- Presentation Preparation

The tasks had designated time frames, and the chart underlined spots where teamwork was especially important. Amdad was responsible for building the dashboard, and Joy was working on arranging and styling the charts. Development of the report was happening simultaneously with the addition of documentation to GitHub.

Our Gantt chart helped keep the team on track and confirmed the progress in our Jira project. As we saw on our Jira board, tasks were grouped into sprints and assigned to members of the team. Because we used Jira and a Gantt chart, we were able to see how the project went, aligned with its planned course.

📷 The Gantt chart is shown as a screenshot in the Screenshots section of this

document. It shows how the project will be executed over time and highlights our skill in scheduling by applying industry tools.

The Gantt chart played an important role in helping the team maintain progress, handle any disagreements and reach all due dates within the expected range.

Task 4: Risk Assessment and Management Plan

We focused a lot on risk assessment when planning and implementing our project. When issues were pinpointed and controlled early, the project stayed on schedule and was completed successfully. Each risk was assessed considering its probability, possible consequences, the team member responsible and where it was at the time. We used a Jira board that everyone could see to monitor and log every risk we encountered, as well as track our sprint tasks and problems as they happened.

The following enhanced risk register was developed to document these risks:

Risk	Likelihood	Impact	Responsible Member	Mitigation Strategy	Status
Time mismanagement	High	High	Amdadul	Used a Gantt chart in addition to planning in Jira sprints	Mitigated
File version conflicts	Low	Medium	Tahsin	Using GitHub, file commit messages are clear and separate branches are used.	Under Control
Miscommunication	Medium	Medium	Joy	Having check-ins each week + commenting on Jira tasks	Resolved
Lack of Excel/charting skills	Low	Medium	Aryan	Support from others and other ways to study	Mitigated
Overlapping tasks	Medium	Medium	Joy	Dependencies were shown on Gantt charts and Jira boards.	Resolved

Data Loss or File Corruption	Medium	High	Amdadul	Keep a regular habit of backing up your files on GitHub and your computer.	Mitigated
Uneven Contribution	Medium	High	Tahsin	Maintained responsibility for sprints by using the Jira board.	Under Control

Jira allowed my group to monitor problems, especially risks, as we worked through the sprint phase. The purpose of placing "File Overwrite Risk" and "Blocker: Delayed Chart Design" in our map was to be aware of and deal with threats to our work early. Since we could hand over tasks by writing comments on the Jira board, communication and accountability improved.

📸 A screenshot of the Jira risk tracking cards and the finished GitHub commit log is found in the Screenshots section to confirm how risks were managed and monitored over time.

Following this process made it far easier to monitor the project and ensure all team members cooperated.

Conclusion: Summary of the Report

The project showed how to design an analytics dashboard in Excel using fictitious data that provides instant business insights. By collaborating, the team handled duties from generating data and designing dashboards to managing timelines, handling risks and keeping control of versions. Using Mockaroo for producing data, Excel for showing data in graphs, GitHub for handling the configuration process and Jira for monitoring tasks made the development smooth and neat.

Every aspect of the project, starting with strategic planning and up to reviewing risks and documentation steps, was managed following industry guidelines. Clear pictures and organised examples of the team collaborating confirmed their open and effective work.

The report demonstrates that by using both technical and management skills, the group was able to make the theoretical guidance real and practical. The project demonstrates that planning, clear communication and agile management are key to producing a fully featured and helpful BI tool.

References

[1] Chen, H., Chiang, R. H. L., & Storey, V. C. authored a journal article in 2012. From Big Data comes Big Benefit through Business Intelligence and Analytics. MIS Quarterly.

[2] Few, Stephen. (2006). Information Dashboard Design. O'Reilly Media.

[3] In 2013, Grolinger, Higashino, Tiwari and Capretz conducted the study. Managing data in the cloud: NoSQL and NewSQL options have been introduced. The Journal of Cloud Computing.

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[6] Rubin, K.S. wrote the book in 2012. Essential Scrum: A Guide to the Most Used Agile Project Method. Addison-Wesley.

[7] D. Parmenter, Key Performance Indicators: Developing, Implementing and Using Winning KPIs, 3rd ed. Hoboken, NJ: Wiley, 2015.

[8] J. Walkenbach, Excel Dashboards and Reports for Dummies, 2nd edition; Hoboken, NJ: Wiley; 2013.