Software Development Project - Proposal

Project Management Data Processing Software

Purpose

The purpose of the proposed software is to address an ineffective and inefficient data processing functionality gap between project management software and cost data in a corporate ERP. There is currently no quick data processing tool which serves as the 'cost integrator' between Oracle Primavera P6, a powerful, high functioning schedule and earned value software, and the institutional Oracle ERP. The proposed software will address the labor intensive cost integration process and provide a new web based user interface for review of full integrated project management data.

Pain point

The in use cost integration tool has not been upgraded since the 1990's and requires dedicated employees to manually enter data every month. The process entails replicating schedule activities from the schedule software in the cost integration software at the begin of a project or, after any approved configuration management approval. On a monthly basis cost data from an ERP system is then matched to the appropriate schedule data by charge code. The data is then dissimentied to project managers via PDF in a static, hard to read table. The end result is an expensive, slow, and out date presentation of project management schedule and cost data which I near impossible to manipulate for further analysis.

Scope of project

A simple software program to take time phased schedule data from Oracle Primavera P6 and process basic earned value data metrics. The processed data will be used to generate graphical representations of project data, for example cost and schedule s-curves. All the processed data will then be accessible via a web-based application which allows the user different views of the project data. The conceptual fullstack system design consists of four components: Data processing software, an SQL Database, an API and a User Interface.

Fullstack conceptual components:

Data processing software

Python software package to process schedule data from a CSV output file, the Python program will utilize Pandas, Numpy, and Matplot to process and visualize the data.

SQL Database for data storage and processing

The processed data will be stored in an SQL database. The use of an SQL database is required to allow historical access to prior month data as well as allow the user access to different level of dataset analysis.

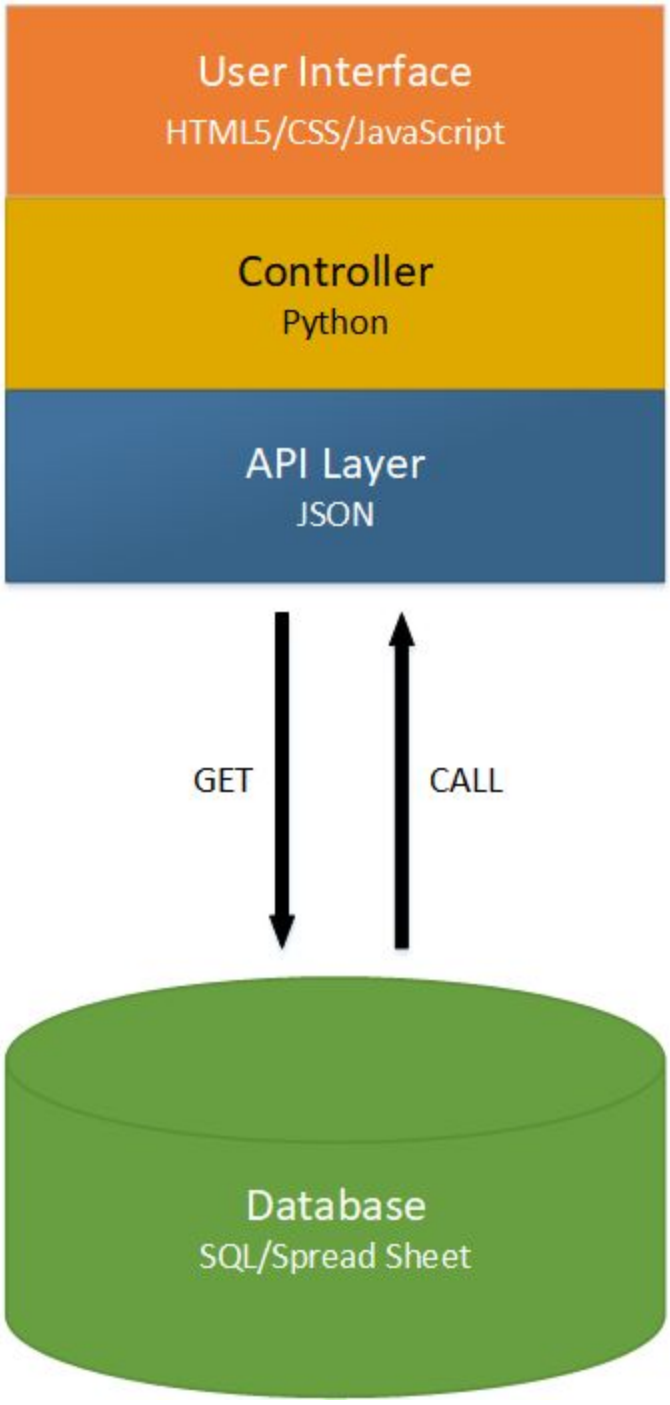
Application Program Interface

An API to fully integrate the three major components of the software program. The API will serve as the connection for the data processing software to the SQL database. The API will also serve as the connection for the SQL database to the web based user interface.

User Interface

The user interface(UI) is a web based application which allows users (project personal) to access the datasets produced by the data processing software. The UI will be written in HTML5/CSS/JavaScript. The application will provide the user access to a portfolio projects, filter data from selected project/projects and allow for easy graphical visualization of the selected data.

3 Tier Architecture Diagram



Minimum Viable Product

The minimum viable product (MVP) shall contain the following functionality:

- The user shall be able to drop/access an output CSV datafile via the UI
- The CSV shall process the data and produce the minimum datasets:
    - Period SPI, CPI, Cost Variance, Schedule Variance, Budgeted Cost of Work Remaining, Variance at Complete
    - Cumulative SPI, CPI, Cost Variance, Schedule Variance, Budgeted Cost of Work Remaining, Variance at Complete
- The Budgeted Cost of Work Scheduled, Budgeted Cost of Work Performed, and Actual Cost of Work Performed will be displayed as line graphs (s-curve)
- The UI shall contain a dashboard with a set ‘home page’ format to show the computed metrics described above
- The UI shall have the functionality to allow the user to filter the data based on charger codes, work package numbers, and control account managers
- Any changes in filter selections shall automatically change the ‘home page’ metrics and graphs

Beyond the MVP

The MVP described above represents the simplest project management data processing required on a month-to-month basis. Beyond the basic MVP is a software product that has the ability to better project than any software on the market today. Every metric described above represents a historical data point. The ability to quickly and accurately project near-term performance is a functionality which no known project management software possess. Beyond the MVP is a fully integrated, real time project management software with built-in machine learning functions to better predict and project based on past performance. A UI that allows project managers to adjust Estimate-to-completion and Estimate-at-Completes quickly and easily. The first ever project management software to incorporate the visual and functional elements of git like version control system for project management change control.