

## Introduction

### Problem Statement:

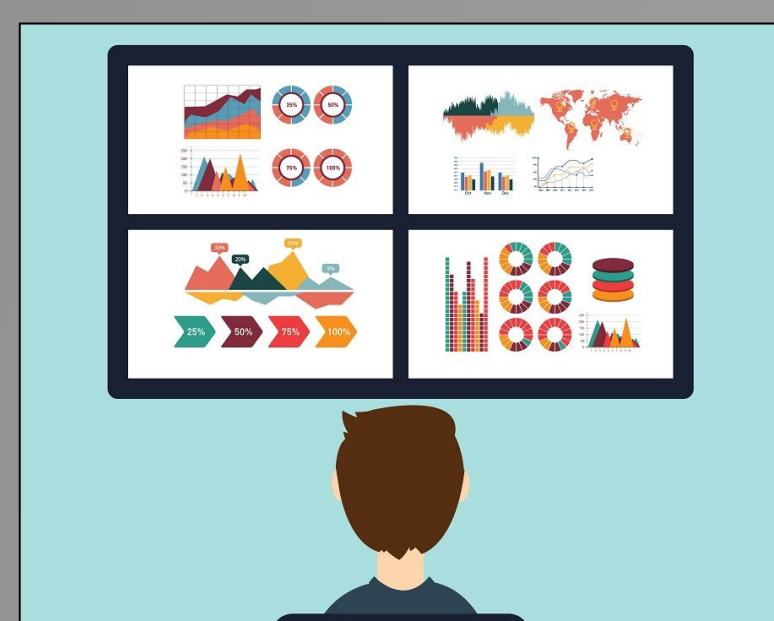
There is a need for a robust, human-readable analytical tool for aircraft engineers, technicians, and operators that parses C-130 engine data.

### Solution:

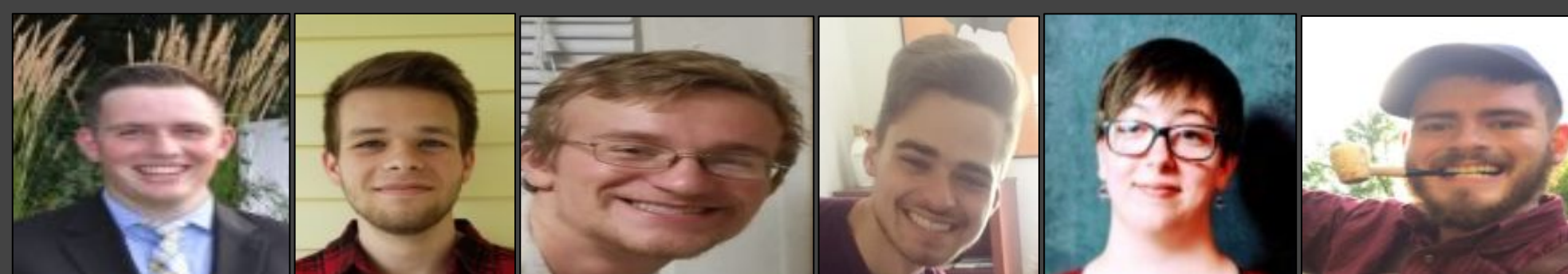
The tool we are creating will be used by employees of Collins Aerospace to review flight data, show performance of engine parts over time, and diagnose issues within the aircraft.

### Intended Uses and Users:

- Users: Collins Aerospace employees
  - Technicians, engineers, and operators
- Uses: Review flight data, diagnose issues, export data



Group: SD MAY20-06  
Project: Engine Data Analysis Tool  
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Members: Zachary Frisvold, Thomas Haddy, John Powen, Ryan Radomski, Jamie Raught, Will Sartin  
Client: Collins Aerospace



## Design Requirements

### Functional Requirements:

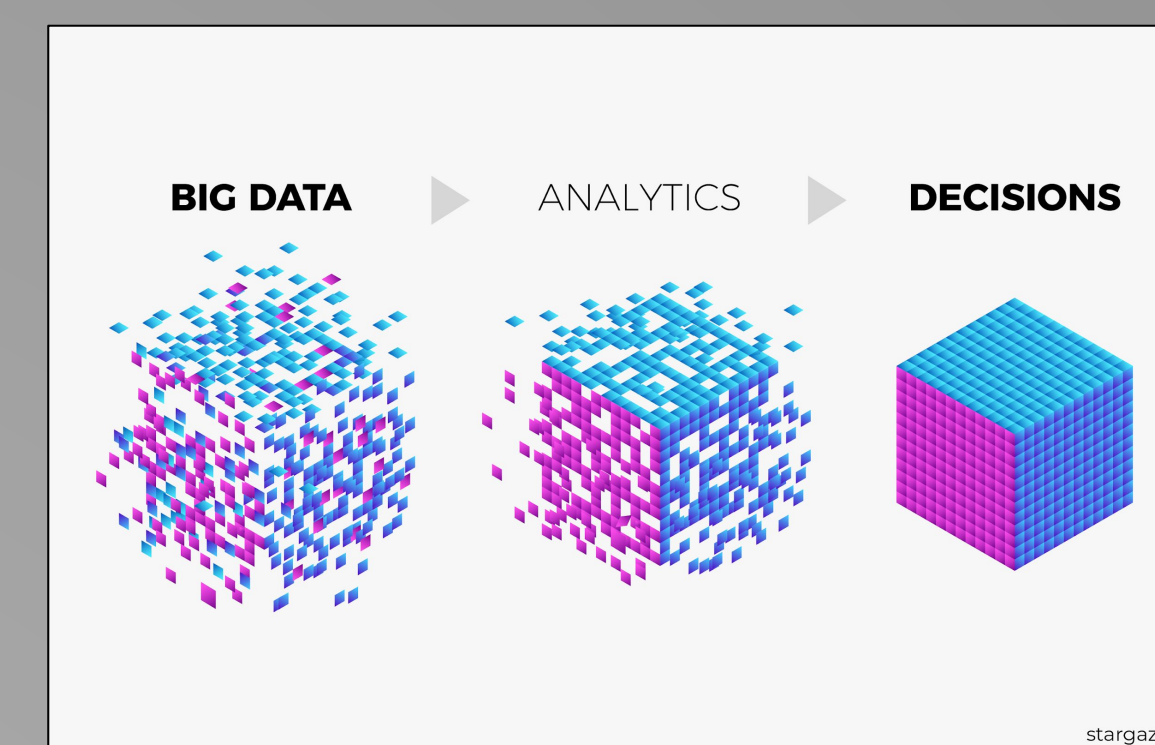
- Windows .exe file
- Internet connection not necessary
- User-defined graphs, charts, and tables
- Parse ASCII data into ARINC 429
- Parse input into selectable data fields
- Export to .csv or .xls

### Non-functional Requirements:

- Quick parsing, worst case of 10 minutes
- Accept any .csv or .xls as input
- Before exporting, the user may select which data fields to be exported

### Operating Environment:

- Any machine with Windows 10 as its OS

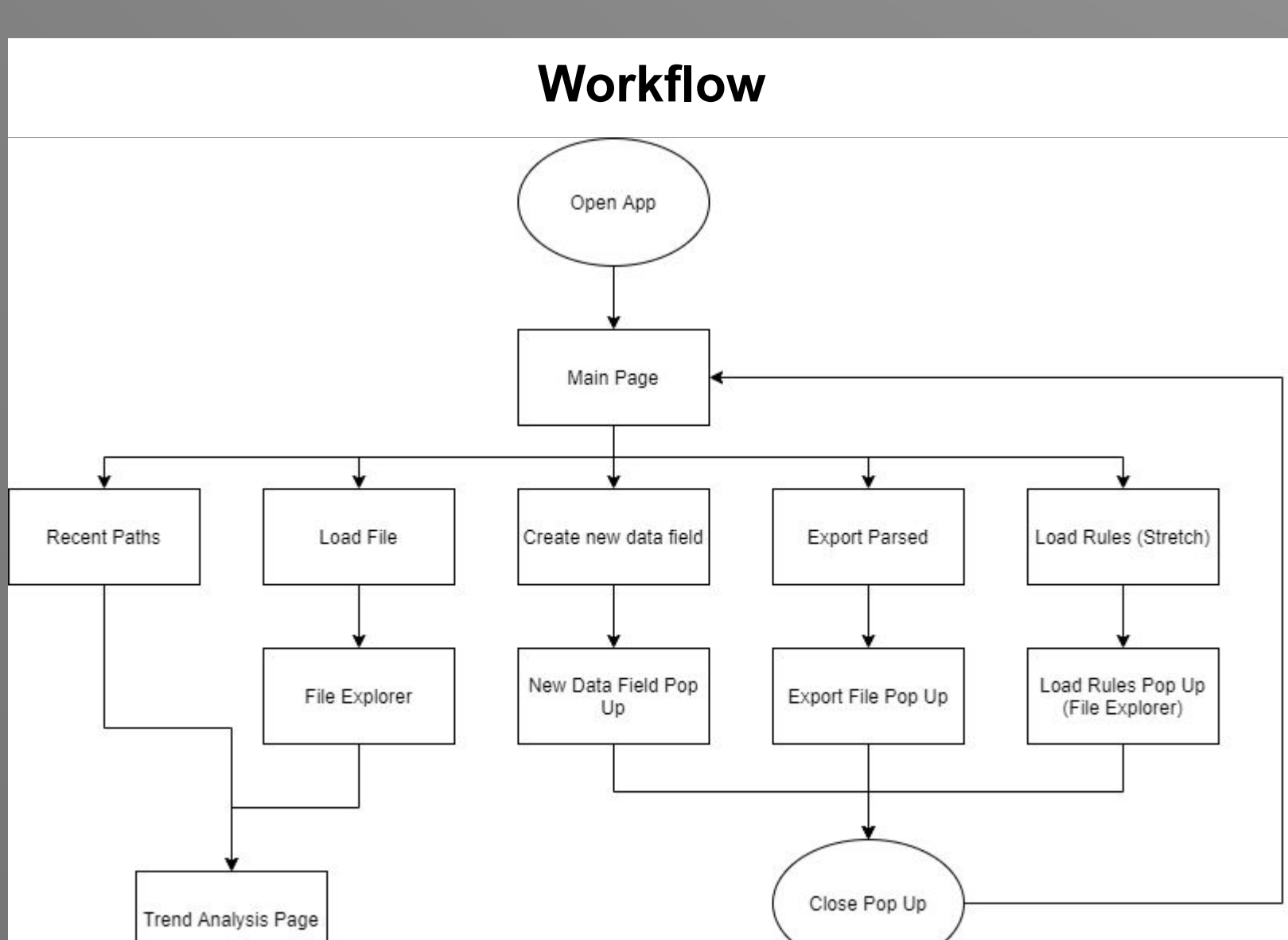
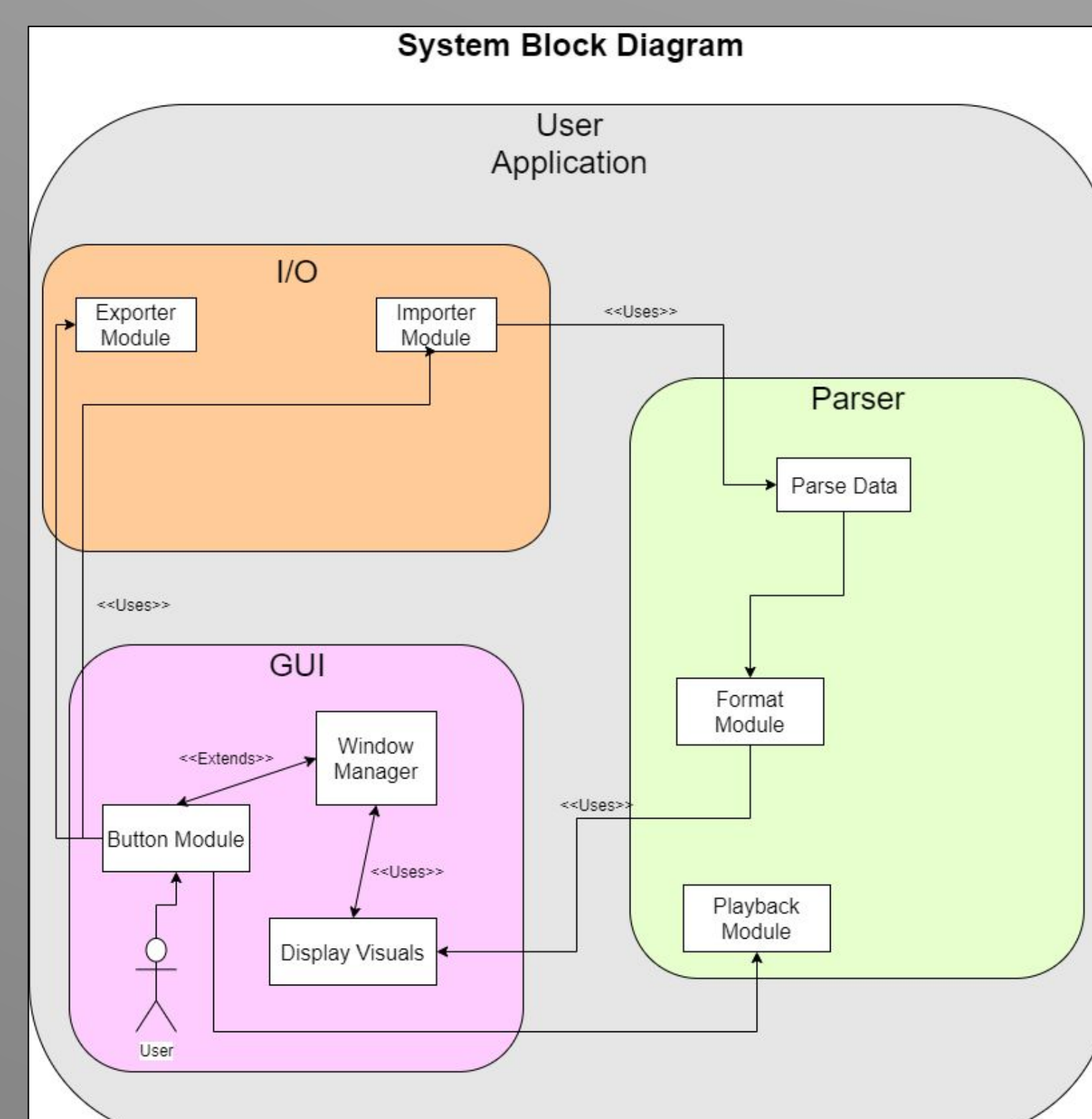
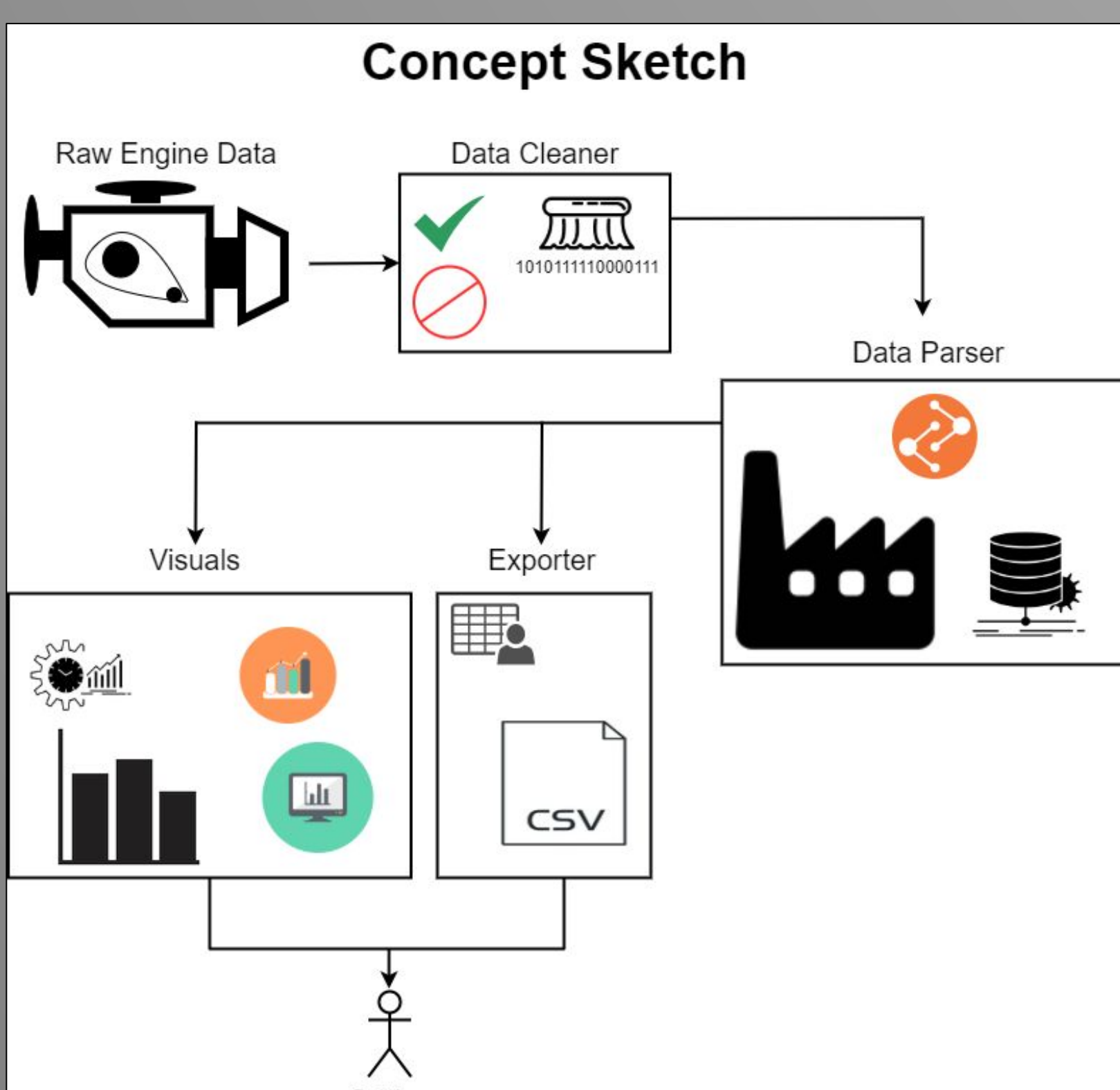


## Design Approach

**Architecture:** Model View Viewmodel (MVVM)

### System Block Diagram:

- I/O: Importer and exporter
- Parser: Parse input and reformat data for exporting
- UI: End-user interaction with application



## Technical Details and Testing

### Technology:

- Language: C#
- Libraries: LiveCharts, MVVM Light, .NET Framework 4.7 (I think)
- Environment: Visual Studio, Windows 10

### Testing:

- Parser unit testing, monthly demos for front-end

