# Features

## SetUp Module

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| Identifier | FS01 |
| Name | Create an object of the YahooFantasySportsQuery class |
| Module | Setup |
| Priority | Essential |
| Description | Create an object of the YahooFantasySportsQuery class so the .query() method can be called in order to query the Yahoo Fantasy API |

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| Identifier | FS02 |
| Name | Extract the league settings data |
| Module | Setup |
| Priority | Essential |
| Description | Extract the league settings data from Yahoo Fantasy API to setup the Fantasy Intelligence Services with the necessary information to read and manipulate the data |

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| Identifier | FS03 |
| Name | Read extracted league settings data and assign to attributes |
| Module | Setup |
| Priority | Essential |
| Description | Read the data extracted for the league settings and assign it to the corresponding attributes that will be accessed later |

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| --- | --- |
| Identifier | FS04 |
| Name | Assign types to stat categories |
| Module | Setup |
| Priority | Important |
| Description | Assign types to stat categories, from their display\_name and sort\_order, to know how to manipulate which stat categories later on |

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| Identifier | FS05 |
| Name | Extract the league teams’ data |
| Module | Setup |
| Priority | Important |
| Description | Extract the league teams’ data from Yahoo Fantasy API, for displaying information later |

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| Identifier | FS06 |
| Name | Read extracted league teams’ data and assign to attributes |
| Module | Setup |
| Priority | Important |
| Description | Read extracted league teams’ data and assign to attributes |

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| Identifier | FS07 |
| Name | Extract the league weeks data |
| Module | Setup |
| Priority | Desirable |
| Description | Extract the league weeks data from Yahoo Fantasy API, used when accessing dates of games |

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| Identifier | FS08 |
| Name | Read extracted league weeks data and assign to attributes |
| Module | Setup |
| Priority | Essential |
| Description | Read the data extracted for the league weeks and assign to corresponding attributes |

## Extraction Module

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| --- | --- |
| Identifier | FE01 |
| Name | Extract the league scoreboard data |
| Module | Extraction |
| Priority | Essential |
| Description | Extract the league scoreboard data from Yahoo Fantasy API to get the number of wins for each team |

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| --- | --- |
| Identifier | FE02 |
| Name | Access the extracted league scoreboard data and identify team wins |
| Module | Extraction |
| Priority | Essential |
| Description | Determine how many wins a team has, from the extracted league scoreboard data |

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| Identifier | FE03 |
| Name | Extract the league teams' stats data |
| Module | Extraction |
| Priority | Essential |
| Description | For every team, extract the team's stats data from Yahoo Fantasy API, which will be the most relevant information for the Fantasy Intelligence Services |

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| Identifier | FE04 |
| Name | Read extracted league teams' stats data and assign to attributes |
| Module | Extraction |
| Priority | Essential |
| Description | Read the stats data extracted for each team in the league and assign it to initial attributes |

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| Identifier | FE05 |
| Name | Dump a dictionary into a .json file |
| Module | Extraction |
| Priority | Essential |
| Description | Save the content of a dictionary into a .json file which will be accessed on later modules |

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| --- | --- |
| Identifier | FE06 |
| Name | Check the weekday today |
| Module | Extraction |
| Priority | Desirable |
| Description | Check the weekday to determine if there are empty stats. |

## Organizer Module

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| --- | --- |
| Identifier | FO01 |
| Name | Read a .json file into a dictionary |
| Module | Organizer |
| Priority | Essential |
| Description | Read the .json file with the extracted data into a dictionary which will be accessed to organize the data |

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| --- | --- |
| Identifier | FO02 |
| Name | Save a pandas.core.frame.DataFrame into a .csv file |
| Module | Organizer |
| Priority | Essential |
| Description | Save a pandas.core.frame.DataFrame into a .csv file in order to save the organized data for later access |

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| --- | --- |
| Identifier | FO03 |
| Name | Create a pair of pandas.core.frame.DataFrame from a dictionary |
| Module | Organizer |
| Priority | Essential |
| Description | From a dictionary, create a pandas.core.frame.DataFrame for the week\_data and for the week\_score |

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| --- | --- |
| Identifier | FO04 |
| Name | Update a pair of pandas.core.frame.DataFrame from a dictionary |
| Module | Organizer |
| Priority | Essential |
| Description | From a dictionary, update the pandas.core.frame.DataFrame for the week\_data and for the week\_score |

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| Identifier | FO05 |
| Name | Reset a pandas.core.frame.DataFrame index to start from 1 |
| Module | Organizer |
| Priority | Essential |
| Description | Reset the index of a pandas.core.frame.DataFrame so it starts from 1, to match the team\_id for every team |

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| Identifier | FO06 |
| Name | Create a dictionary for week\_data with empty arrays as elements |
| Module | Organizer |
| Priority | Important |
| Description | Create a dictionary for the week\_data with specific strings as keys and empty arrays as elements, ready to be filled in |

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| Identifier | FO07 |
| Name | Assign values to the arrays in the week\_data dictionary |
| Module | Organizer |
| Priority | Important |
| Description | Assign the correct values to the arrays in the week\_data dictionary, using the dictionary read from the .json file created in the Extraction module |

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| Identifier | FO08 |
| Name | Assign values to the arrays in the week\_score dictionary |
| Module | Organizer |
| Priority | Important |
| Description | Create a dictionary for the week\_score with specific strings as keys and empty arrays as elements, ready to be filled in |

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| Identifier | FO09 |
| Name | Correctly assign values to the arrays in the dictionary from the dictionary read from the .json file (created for week\_data) |
| Module | Organizer |
| Priority | Important |
| Description | Assign the correct values to the arrays in the week\_score dictionary, using the week\_data dictionary |

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| Identifier | FO10 |
| Name | Separate a stat name string representing a fraction into numerator and denominator |
| Module | Organizer |
| Priority | Important |
| Description | Separate a stat name string representing a fraction, that which has a '/', into two string with the corresponding names, important for the naming of the columns |

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| Identifier | FO11 |
| Name | For a given array, count the number of elements that a specific element is greater than |
| Module | Organizer |
| Priority | Important |
| Description | For a given array, count the number of elements that a specific element is greater than, to see the number of teams that have scored less than the analyzed team |

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| Identifier | FO12 |
| Name | Compare two values |
| Module | Organizer |
| Priority | Important |
| Description | Compare two values to see which one is greater |

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| Identifier | FO13 |
| Name | Substitute any occurrence in a string that is '-' by a '0' |
| Module | Organizer |
| Priority | Desirable |
| Description | For a stat representing a percentage, substitute any occurrence in a string that is '-' by a '0', to avoid a sum of a string and an integer |

## Visualizer Module

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| --- | --- |
| Identifier | FV01 |
| Name | Try to create a copy of a pandas.core.frame.DataFrame |
| Module | Visualizer |
| Priority | Essential |
| Description | Try to create a copy of a pandas.core.frame.DataFrame from the data saved by the Organizer module |

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| Identifier | FV02 |
| Name | Raise an Attribute Error if the pandas.core.frame.DataFrame does not exist |
| Module | Visualizer |
| Priority | Essential |
| Description | Raise an Attribute Error if the pandas.core.frame.DataFrame does not exist, as part of the assertion that there is data to be visualized |

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| Identifier | FV03 |
| Name | Print a list of possible visualization options |
| Module | Visualizer |
| Priority | Desirable |
| Description | Print a list of possible visualization options so the user can know how to create visualizations without studying the code |

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| Identifier | FV04 |
| Name | Save a pandas.io.formats.style.Styler as an image |
| Module | Visualizer |
| Priority | Important |
| Description | Save a pandas.io.formats.style.Styler as an image, so that the user can access it later on |

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| --- | --- |
| Identifier | FV05 |
| Name | Filter a pandas.core.frame.DataFrame for certain columns |
| Module | Visualizer |
| Priority | Essential |
| Description | Filter a pandas.core.frame.DataFrame for certain columns, so that the organized data can be used to create a relevant visualization |

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| Identifier | FV06 |
| Name | Style a pandas.core.frame.DataFrame into a pandas.io.formats.style.Styler |
| Module | Visualizer |
| Priority | Essential |
| Description | Style a pandas.core.frame.DataFrame into a pandas.io.formats.style.Styler, which will be one of the core visualizations |

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| Identifier | FV07 |
| Name | Create a colormap using seaborn |
| Module | Visualizer |
| Priority | Desirable |
| Description | Create a colormap using seaborn, in order to better distinguish teams’ data in a visualization |

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| Identifier | FV08 |
| Name | Create a matplotlib.axes.\_subplots.AxesSubplot from a pandas.core.frame.DataFrame |
| Module | Visualizer |
| Priority | Important |
| Description | Create a matplotlib.axes.\_subplots.AxesSubplot from a pandas.core.frame.DataFrame, in order to visualize the season cumulative score |

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| Identifier | FV09 |
| Name | Display a pandas.io.formats.style.Styler object |
| Module | Visualizer |
| Priority | Important |
| Description | Display a pandas.io.formats.style.Styler object, so the user can see the visualization without having to find the saved file |

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| Identifier | FV10 |
| Name | Display a matplotlib.axes.\_subplots.AxesSubplot |
| Module | Visualizer |
| Priority | Important |
| Description | Display a matplotlib.axes.\_subplots.AxesSubplot, so the user can see the visualization without having to find the saved file |

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| Identifier | FV11 |
| Name | Receive user input |
| Module | Visualizer |
| Priority | Desirable |
| Description | Receive user input to facilitate the calling of specific methods by users |

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| Identifier | FV12 |
| Name | Validate user input |
| Module | Visualizer |
| Priority | Desirable |
| Description | Validate user input, to avoid Key Errors when generating visualizations |

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| Identifier | FV13 |
| Name | Change the active week in a Data\_Visualization object |
| Module | Visualizer |
| Priority | Important |
| Description | Change the active week in a Data\_Visualization object, so visualizations for any week can be generated |

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| Identifier | FV14 |
| Name | Save a pandas.io.formats.style.Styler into an .xlsx excel file |
| Module | Visualizer |
| Priority | Desirable |
| Description | Save a pandas.io.formats.style.Styler into an .xlsx excel file, for user access and manipulation to the visualization |

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| Identifier | FV15 |
| Name | Create a bokeh.models.ColumnDataSource object |
| Module | Visualizer |
| Priority | Important |
| Description | Create a bokeh.models.ColumnDataSource object that will be used to create Stat Comparison data |

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| Identifier | FV16 |
| Name | Create a bokeh.models.HoverTool object |
| Module | Visualizer |
| Priority | Important |
| Description | Create a bokeh.models.HoverTool object, to create an interactive visualization for Stat Comparison data |

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| Identifier | FV17 |
| Name | Create a bokeh.plotting.figure object |
| Module | Visualizer |
| Priority | Important |
| Description | Create a bokeh.plotting.figure object, to display and save the Stat Comparison visualization |

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| Identifier | FV18 |
| Name | Save a bokeh.plotting.figure object into an .html file |
| Module | Visualizer |
| Priority | Important |
| Description | Save a bokeh.plotting.figure object into an .html file, for user access later on |

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| Identifier | FV19 |
| Name | Display a bokeh.plotting.figure object in a web browser |
| Module | Visualizer |
| Priority | Important |
| Description | Display a bokeh.plotting.figure object in a web browser to facilitate user access to the Stat Comparison visualization |