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unzipped_files	unzipping datafile	2 days ago
zippedData	workings on the student.ipynb file- ...	2 days ago
.gitattributes	Track .db and .zip files with Git LFS	2 days ago
.gitignore	Add temporary file pattern to .gitig...	51 minutes ago
CONTRIBUTING.md	Initial commit	4 years ago
LICENSE.md	Initial commit	4 years ago
Presentation.pdf.pdf	Added canvas-repo and updated st...	1 hour ago
Presentations in pdf,word an...	Added canvas-repo and updated st...	1 hour ago
README.md	Resolve merge conflicts	2 days ago
awesome.gif	Initial commit	4 years ago
bom_movie_gross_analysis.xlsx	Added canvas-repo and updated st...	1 hour ago
canvas-repo	Further revisions	7 hours ago
git.pdf	Add git.pdf	1 minute ago
im.db	unzipping datafile	2 days ago
movie_data_erd.jpeg	IMDB data in SQLite	3 years ago
movie_list.csv	Deleted .canvas: Removed unnecess...	7 hours ago
sorted_bom_movie_gross.csv	Deleted .canvas: Removed unnecess...	7 hours ago
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README License

Phase 1 Project Description

You've made it all the way through the first phase of this course - take a minute to celebrate your awesomeness!

Now you will put your new skills to use with a large end-of-Phase project!

In this project description, we will cover:

- ***Project Overview:*** the project goal, audience, and dataset
- ***Deliverables:*** the specific items you are required to produce for this project
- ***Grading:*** how your project will be scored
- ***Getting Started:*** guidance for how to begin your first project

Project Overview

For this project, you will use exploratory data analysis to generate insights for a business stakeholder.

Business Problem

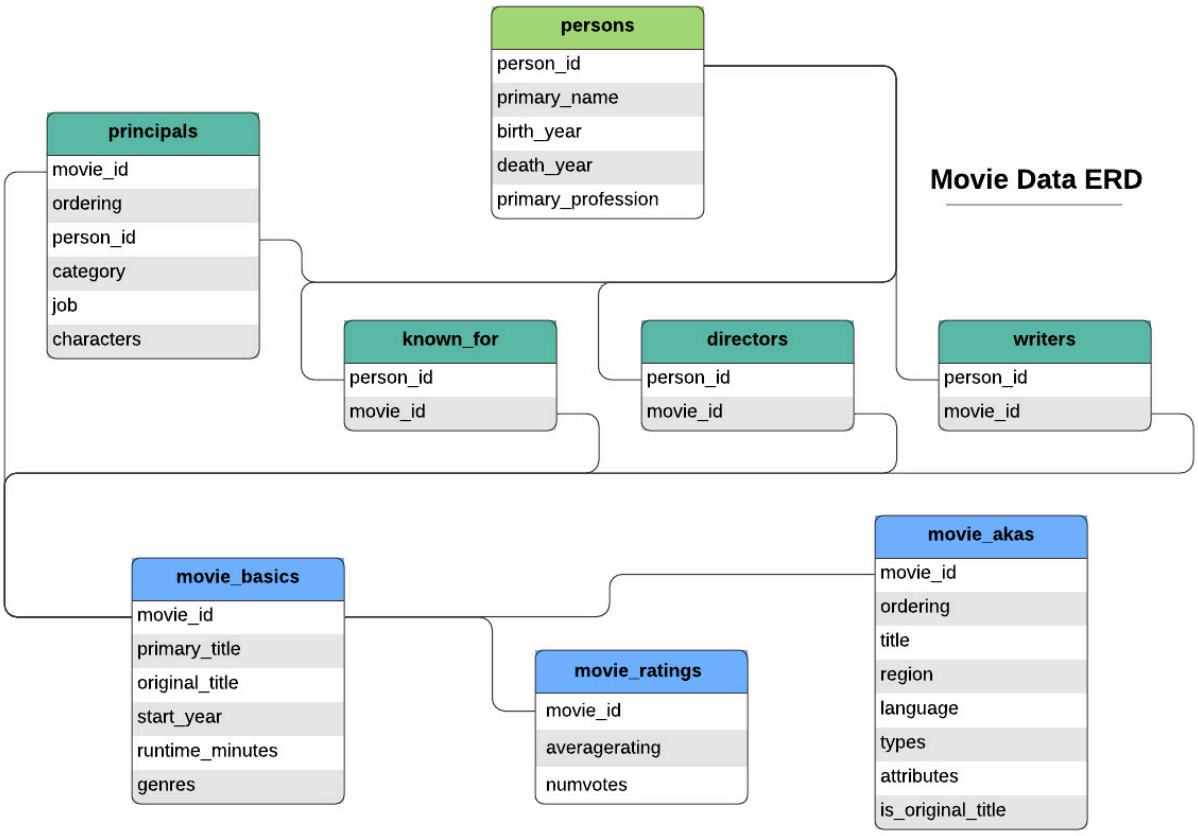
Microsoft sees all the big companies creating original video content and they want to get in on the fun. They have decided to create a new movie studio, but they don't know anything about creating movies. You are charged with exploring what types of films are currently doing the best at the box office. You must then translate those findings into actionable insights that the head of Microsoft's new movie studio can use to help decide what type of films to create.

The Data

In the folder `zippedData` are movie datasets from:

- Box Office Mojo
- IMDB
- Rotten Tomatoes
- TheMovieDB
- The Numbers

Because it was collected from various locations, the different files have different formats. Some are compressed CSV (comma-separated values) or TSV (tab-separated values) files that can be opened using spreadsheet software or `pd.read_csv`, while the data from IMDB is located in a SQLite database.



Note that the above diagram shows ONLY the IMDB data. You will need to look carefully at the features to figure out how the IMDB data relates to the other provided data files.

It is up to you to decide what data from this to use and how to use it. If you want to make this more challenging, you can scrape websites or make API calls to get additional data. If you are feeling overwhelmed or behind, we recommend you use only the following data files:

- `im.db.zip`
  - Zipped SQLite database (you will need to unzip then query using SQLite)
  - `movie_basics` and `movie_ratings` tables are most relevant
- `bom.movie_gross.csv.gz`
  - Compressed CSV file (you can open without expanding the file using `pd.read_csv`)

Key Points

- **Your analysis should yield three concrete business recommendations.** The ultimate purpose of exploratory analysis is not just to learn about the data, but to help an organization perform better. Explicitly relate your findings to business needs by recommending actions that you think the business (Microsoft) should take.
- **Communicating about your work well is extremely important.** Your ability to provide value to an organization - or to land a job there - is directly reliant on your ability to communicate with them about what you have done and why it is valuable. Create a storyline your audience (the head of Microsoft's new movie studio) can follow by walking them through the steps of your process, highlighting the most important points and skipping over the rest.

- **Use plenty of visualizations.** Visualizations are invaluable for exploring your data and making your findings accessible to a non-technical audience. Spotlight visuals in your presentation, but only ones that relate directly to your recommendations. Simple visuals are usually best (e.g. bar charts and line graphs), and don't forget to format them well (e.g. labels, titles).

Deliverables

There are three deliverables for this project:

- A **non-technical presentation**
- A **Jupyter Notebook**
- A **GitHub repository**

Non-Technical Presentation

The non-technical presentation is a slide deck presenting your analysis to business stakeholders.

- ***Non-technical*** does not mean that you should avoid mentioning the technologies or techniques that you used, it means that you should explain any mentions of these technologies and avoid assuming that your audience is already familiar with them.
- ***Business stakeholders*** means that the audience for your presentation is Microsoft, not the class or teacher. Do not assume that they are already familiar with the specific business problem, but also do not explain to them what Microsoft is.

The presentation describes the project ***goals, data, methods, and results***. It must include at least ***three visualizations*** which correspond to ***three business recommendations***.

We recommend that you follow this structure, although the slide titles should be specific to your project:

1. Beginning
    - Overview
    - Business Understanding
2. Middle
    - Data Understanding
    - Data Analysis
3. End
    - Recommendations
    - Next Steps
    - Thank You
        - This slide should include a prompt for questions as well as your contact information (name and LinkedIn profile)

You will give a live presentation of your slides and submit them in PDF format on Canvas. The slides should also be present in the GitHub repository you submit with a file name of `presentation.pdf`.

The graded elements of the presentation are:

- Presentation Content
- Slide Style
- Presentation Delivery and Answers to Questions

See the Grading section for further explanation of these elements.

For further reading on creating professional presentations, check out:

- Presentation Content
- Slide Style

Jupyter Notebook

The Jupyter Notebook is a notebook that uses Python and Markdown to present your analysis to a data science audience.

- ***Python and Markdown*** means that you need to construct an integrated `.ipynb` file with Markdown (headings, paragraphs, links, lists, etc.) and Python code to create a well-organized, skim-able document.
  - The notebook kernel should be restarted and all cells run before submission, to ensure that all code is runnable in order.
  - Markdown should be used to frame the project with a clear introduction and conclusion, as well as introducing each of the required elements.
- ***Data science audience*** means that you can assume basic data science proficiency in the person reading your notebook. This differs from the non-technical presentation.

Along with the presentation, the notebook also describes the project ***goals, data, methods, and results***. It must include at least ***three visualizations*** which correspond to ***three business recommendations***.

You will submit the notebook in PDF format on Canvas as well as in `.ipynb` format in your GitHub repository.

The graded elements for the Jupyter Notebook are:

- Business Understanding
- Data Understanding
- Data Preparation
- Data Analysis
- Visualization
- Code Quality

See the Grading section for further explanation of these elements.

GitHub Repository

The GitHub repository is the cloud-hosted directory containing all of your project files as well as their version history.

This repository link will be the project link that you include on your resume, LinkedIn, etc. for prospective employers to view your work. Note that we typically recommend that 3 links are highlighted (out of 5 projects) so don't stress too much about getting this one to be perfect! There will also be time after graduation for cosmetic touch-ups.

A professional GitHub repository has:

1. `README.md`
   - A file called `README.md` at the root of the repository directory, written in Markdown; this is what is rendered when someone visits the link to your repository in the browser
   - This file contains these sections:
     - Overview
     - Business Understanding
       - Include stakeholder and key business questions

        - Data Understanding and Analysis
            - Source of data
            - Description of data
            - Three visualizations (the same visualizations presented in the slides and notebook)
        - Conclusion
            - Summary of conclusions including three relevant findings
2. Commit history
    - Progression of updates throughout the project time period, not just immediately before the deadline
    - Clear commit messages
    - Commits from all team members (if a group project)
3. Organization
    - Clear folder structure
    - Clear names of files and folders
    - Easily-located notebook and presentation linked in the README
4. Notebook(s)
    - Clearly-indicated final notebook that runs without errors
    - Exploratory/working notebooks (can contain errors, redundant code, etc.) from all team members (if a group project)
5. `.gitignore`
    - A file called `.gitignore` at the root of the repository directory instructs Git to ignore large, unnecessary, or private files
        - Because it starts with a `.`, you will need to type `ls -a` in the terminal in order to see that it is there
    - GitHub maintains a Python .gitignore that may be a useful starting point for your version of this file
    - To tell Git to ignore more files, just add a new line to `.gitignore` for each new file name
        - Consider adding `.DS_Store` if you are using a Mac computer, as well as project-specific file names
        - If you are running into an error message because you forgot to add something to `.gitignore` and it is too large to be pushed to GitHub this blog post(friend link) should help you address this

You wil submit a link to the GitHub repository on Canvas.

See the Grading section for further explanation of how the GitHub repository will be graded.

For further reading on creating professional notebooks and `README`s, check out this reading.

Grading

To pass this project, you must pass each project rubric objective. The project rubric objectives for Phase 1 are:

1. Attention to Detail
2. Data Communication
3. Authoring Jupyter Notebooks
4. Data Manipulation and Analysis with `pandas`

Attention to Detail

If you have searched for a job, you have probably seen "attention to detail" appear on a job description. In a survey of hiring managers, fully 56% of them said they felt that recent college grads lacked this skill. So, what does "attention to detail" mean, and how will you be graded on it at Flatiron School?

Attention to detail means that you accomplish tasks thoroughly and accurately. You need to understand what is being asked of you, and double-check that your work fulfills all of the requirements. This will help make you a "no-brainer hire" because it helps employers feel confident that they will not have to double-check your work. For further reading, check out this article from Indeed.

Attention to detail will be graded based on the project checklist. In Phase 1, you need to complete 60% (6 out of 10) or more of the checklist elements in order to pass the Attention to Detail objective. The standard for passing the Attention to Detail objective will increase with each Phase, until you are required to complete all elements to pass Phase 5 (Capstone).

The Phase 1 Project Checklist is linked here as well as directly in Canvas. The elements highlighted in yellow are the elements you need to complete in order to pass this objective. We recommend that you make your own copy of this document, so that you can check off each element as you complete it. The checklist also contains more specific, detailed guidance about the deliverables described above.

Below are the definitions of each rubric level for this objective. This information is also summarized in the rubric, which is attached to the project submission assignment.

Exceeds Objective

70% or more of the project checklist items are complete

Meets Objective (Passing Bar)

60% of the project checklist items are complete

Approaching Objective

50% of the project checklist items are complete

Does Not Meet Objective

40% or fewer of the project checklist items are complete

Data Communication

Communication is another key "soft skill". In the same survey mentioned above, 46% of hiring managers said that recent college grads were missing this skill.

Because "communication" can encompass such a wide range of contexts and skills, we will specifically focus our Phase 1 objective on Data Communication. We define Data Communication as:

> Communicating basic data analysis results to diverse audiences via writing and live presentation

To further define some of these terms:

- By "basic data analysis" we mean that you are filtering, sorting, grouping, and/or aggregating the data in order to answer business questions. This project does not involve inferential statistics or machine learning, although descriptive statistics such as measures of central tendency are encouraged.
- By "results" we mean your ***three visualizations and recommendations***.
- By "diverse audiences" we mean that your presentation and notebook are appropriately addressing a business and data science audience, respectively.

Below are the definitions of each rubric level for this objective. This information is also summarized in the rubric, which is attached to the project submission assignment.

Exceeds Objective

Creates and describes appropriate visualizations for given business questions, where each visualization fulfills all elements of the checklist

> This "checklist" refers to the Data Visualization checklist within the larger Phase 1 Project Checklist

Meets Objective (Passing Bar)

Creates and describes appropriate visualizations for given business questions

> This objective can be met even if all checklist elements are not fulfilled. For example, if there is some illegible text in one of your visualizations, you can still meet this objective

Approaching Objective

Creates visualizations that are not related to the business questions, or uses an inappropriate type of visualization

> Even if you create very compelling visualizations, you cannot pass this objective if the visualizations are not related to the business questions

> An example of an inappropriate type of visualization would be using a line graph to show the correlation between two independent variables, when a scatter plot would be more appropriate

Does Not Meet Objective

Does not submit the required number of visualizations

Authoring Jupyter Notebooks

According to Kaggle's 2020 State of Data Science and Machine Learning Survey, 74.1% of data scientists use a Jupyter development environment, which is more than twice the percentage of the next-most-popular IDE, Visual Studio Code. Jupyter Notebooks allow for reproducible, skim-able code documents for a data science audience. Comfort and skill with authoring Jupyter Notebooks will prepare you for job interviews, take-home challenges, and on-the-job tasks as a data scientist.

The key feature that distinguishes *authoring Jupyter Notebooks* from simply *writing Python code* is the fact that Markdown cells are integrated into the notebook along with the Python cells in a notebook. You have seen examples of this throughout the curriculum, but now it's time for you to practice this yourself!

Below are the definitions of each rubric level for this objective. This information is also summarized in the rubric, which is attached to the project submission assignment.

Exceeds Objective

Uses Markdown and code comments to create a well-organized, skim-able document that follows all best practices

> Refer to the repository readability reading for more tips on best practices

Meets Objective (Passing Bar)

Uses some Markdown to create an organized notebook, with an introduction at the top and a conclusion at the bottom

Approaching Objective

Uses Markdown cells to organize, but either uses only headers and does not provide any explanations or justifications, or uses only plaintext without any headers to segment out sections of the notebook

> Headers in Markdown are delineated with one or more `#`s at the start of the line. You should have a mixture of headers and plaintext (text where the line does not start with `#`)

Does Not Meet Objective

Does not submit a notebook, or does not use Markdown cells at all to organize the notebook

Data Manipulation and Analysis with `pandas`

`pandas` is a very popular data manipulation library, with over 2 million downloads on Anaconda (`conda install pandas`) and over 19 million downloads on PyPI (`pip install pandas`) at the time of this writing. In our own internal data, we see that the overwhelming majority of Flatiron School DS grads use `pandas` on the job in some capacity.

Unlike in base Python, where the Zen of Python says "There should be one-- and preferably only one --obvious way to do it", there is often more than one valid way to do something in `pandas`. However there are still more efficient and less efficient ways to use it. Specifically, the best `pandas` code is *performant* and *idiomatic*.

Performant `pandas` code utilizes methods and broadcasting rather than user-defined functions or `for` loops. For example, if you need to strip whitespace from a column containing string data, the best approach would be to use the `pandas.Series.str.strip` method rather than writing your own function or writing a loop. Or if you want to multiply everything in a column by 100, the best approach would be to use broadcasting (e.g. `df["column_name"] * 100`) instead of a function or loop. You can still write your own functions if needed, but only after checking that there isn't a built-in way to do it.

Idiomatic `pandas` code has variable names that are meaningful words or abbreviations in English, that are related to the purpose of the variables. You can still use `df` as the name of your DataFrame if there is only one main DataFrame you are working with, but as soon as you are merging multiple DataFrames or taking a subset of a DataFrame, you should use meaningful names. For example, `df2` would not be an idiomatic name, but `movies_and_reviews` could be.

We also recommend that you rename all DataFrame columns so that their meanings are more understandable, although it is fine to have acronyms. For example, `"col1"` would not be an idiomatic name, but `"USD"` could be.

Below are the definitions of each rubric level for this objective. This information is also summarized in the rubric, which is attached to the project submission assignment.

Exceeds Objective

Uses `pandas` to prepare data and answer business questions in an idiomatic, performant way

Meets Objective (Passing Bar)

Successfully uses `pandas` to prepare data in order to answer business questions

> This includes projects that *occasionally* use base Python when `pandas` methods would be more appropriate (such as using `enumerate()` on a DataFrame), or occasionally performs operations that do not appear to have any relevance to the business questions

Approaching Objective

Uses `pandas` to prepare data, but makes significant errors

> Examples of significant errors include: the result presented does not actually answer the stated question, the code produces errors, the code *consistently* uses base Python when `pandas` methods would be more appropriate, or the submitted notebook contains significant quantities of code that is unrelated to the presented analysis (such as copy/pasted code from the curriculum or StackOverflow)

Does Not Meet Objective

Unable to prepare data using `pandas`

> This includes projects that successfully answer the business questions, but do not use `pandas` (e.g. use only base Python, or use some other tool like R, Tableau, or Excel)

Getting Started

Please start by reviewing the contents of this project description. If you have any questions, please ask your instructor ASAP.

Next, you will need to complete the ***Project Proposal*** which must be reviewed by your instructor before you can continue with the project.

Then, you will need to create a GitHub repository. There are three options:

1. Look at the Phase 1 Project Templates and Examples repo and follow the directions in the MVP branch.
2. Fork the Phase 1 Project Repository, clone it locally, and work in the `student.ipynb` file. Make sure to also add and commit a PDF of your presentation to your repository with a file name of `presentation.pdf`.
3. Create a new repository from scratch by going to github.com/new and copying the data files from one of the above resources into your new repository. This approach will result in the most professional-looking portfolio repository, but can be more complicated to use. So if you are getting stuck with this option, try one of the above options instead.

Summary

This project will give you a valuable opportunity to develop your data science skills using real-world data. The end-of-phase projects are a critical part of the program because they give you a chance to bring together all the skills you've learned, apply them to realistic projects for a business stakeholder, practice communication skills, and get feedback to help you improve. You've got this!

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Releases

No releases published
Create a new release

Packages

No packages published
Publish your first package

Contributors 4


Mosota-Kemunto-Gladys-2020


Cheffrey2000 Jeffrey Hinkle


DavidBraslow David Braslow


hoffm386 Erin R Hoffman

Languages

- **Jupyter Notebook** 100.0%