

# CS551P Flask Web Application Submission Report

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Accessing, planning, developing, testing and deploying every web application development's phases[1]. For accessing and planning, assignment requirements are carefully studied, especially the dataset requirements which are 2000-7000 rows of data are required with at least two tables linked with foreign keys. With a two-week timeframe limit, requirements clarification and feedback from professors and demonstrators are frequently reviewed. I used a movie industry database in form of a Comma-Separated Values (CSV) file[2]. Foreign keys picked are rating and genre (appendix 1). I separately stored 2225 rows of data from the years 2009-2020 to minimise server load. Separate genre and rating CSVs are developed and stored in the same data folder for easier management.

The model view controller (MVC) pattern is used in this Flask database-driven web application. The model part includes the data folder with the database file (movie.db) and database generation python (parse\_csv.py). The view part includes the Hypertext Markup Language (HTML) templates with the common Cascading Style Sheet (CSS). The controller part is the Python file for initialising the Flask application (movie.py). All SELECT queries for different templates are placed in the controller.

In the developing phase, movie.db is first created from CSV files with parse\_csv.py referencing Dr. Bruce's polar bear example[3]. Error handling is done for the empty values in CSV files(appendix 4). Setting the datatype as TEXT is the solution as the empty values do not have large impacts. Agile Software Development Methodology[4] is adopted with one to two-day cycles in the development, test and deployment phases. Every part of the feature's development always ends with workable, errorless and deployable code with testing and deploying. Such code is committed to GitHub regularly for version control and backup.

In the first version, a basic Hypertext Markup Language (HTML) template referencing Dr Bruce's polar bear example[3] is used to test the linkage of movie.db and the display of all data using the Codio virtual environment (appendix 2.1). Three templates are developed for displaying all details from three tables. The movie page showing details of the movie table is named index.html.

In the second version, the movie names in index.html (appendix 2.2.1) are upgraded to uniform resources locator (URL) links to the newly built fourth template for displaying all movie details (appendix 2.2.4). Fewer data columns are shown in index.html.

In the third version, an HTML table layout, a Bootstrap tab navigation bar and a CSS file are included. As the content class and HTML tables are used in all templates, one CSS declaration in the common CSS file can maintain a constant look and feel between the pages, for example, colours for the background, table borders, table heading background and accent words are only declared once for all web pages. Using Bootstrap, navigation tabs are added and tables can adapt to the changing width of browsers.

In version four, data from the rating and genre columns are upgraded to URL links linking to the fifth and sixth templates. Details of the particular rating or genre are shown with the respective movies (appendices 2.4.4, and 2.4.5). Google Fonts are added. Complete page redirections are shown in appendix 3. All movie names are linked to the respective movie\_detail.html. Respective rating is linked to the rating\_movie.html except the one in movie\_detail.html. Respective genre is linked to the genre\_movie.html except the one in movie\_detail.html. Showing two tables' Information in the same template is achieved through Structured Query Language (SQL) in the controller movie.py by SELECT columns from both tables. Concepts are cleared by the demonstrator for printing the rating or genre description once by indicating printing the first row of the data `{{rows[0]['rating']}}`. Empty rating values are found in the dataset and are shown directly in the rating.html with an empty key, causing the users unable to use the URL linking function to see movies with empty rating data. But I keep it to show the existence of such a category in the data set.

For testing, one of the packages in behaviour-driven development (BDD), behave considers user stories using the Given When Then pattern. Navigation paths to movie\_detail.html, rating\_movie.html and genre\_movie.html are tested which generates nine scenarios. However, behave is unable to run in Codio so developed features and step files are stored separately in the features folder to prevent causing any errors. A branch in GitHub 'feature\_separate' is used during the development of BDD-related files. The branch is merged to the main when all files in the features folder are developed error-free.

Two kinds of deployment are used. First is the Flask virtual environment in Codio. It is the major testing deployment area during development. Any changes made in code can be instantly displayed on the deployment, which makes easier modifications in HTML or CSS. The second is Render deployment. Render is a website for deploying websites publicly by linking to a repository to websites like GitHub. I tried my first Render deployment in version 3 for CSS-style viewing. Following instructions given by Dr Mu[5], requirements.txt is generated. Two errors are encountered during the Render deployment (appendix 5) with the requirements.txt. The demonstrator helped me to solve those errors by amending the dependencies listed inside. As Render gets the files from GitHub, the newly developed code are required to push to GitHub before Render deployment. Nevertheless, I need to test multiple times in Codio virtual environment before pushing the workable code to GitHub and then deploying it in Render. Therefore, in development, the Render deployed version is usually not the newest but it always works and is error-free.

In all versions, I make sure of the code's workability before starting the next feature. I always test using Codio virtual environment deployment before committing my code to GitHub to prevent any last-minute running errors. Also, I regularly commit and push my workable code parts to GitHub with meaningful messages to indicate the major changes made in the commit to reduce the risk of losing the code and prevent overwriting of developed code. Therefore Render can deploy the latest workable code.

In conclusion, I have learnt the whole valuable process from assessing to deploying a database-driven Flask web application. Python, SQL, HTML, CSS and Flask are learnt and applied for deploying a workable website. Data finding, SQL queries and database concepts are revisited and applied. GitHub is used for version controlling, Behave in BDD is used to consider user stories and Render is used for website deployment.

# Website Links

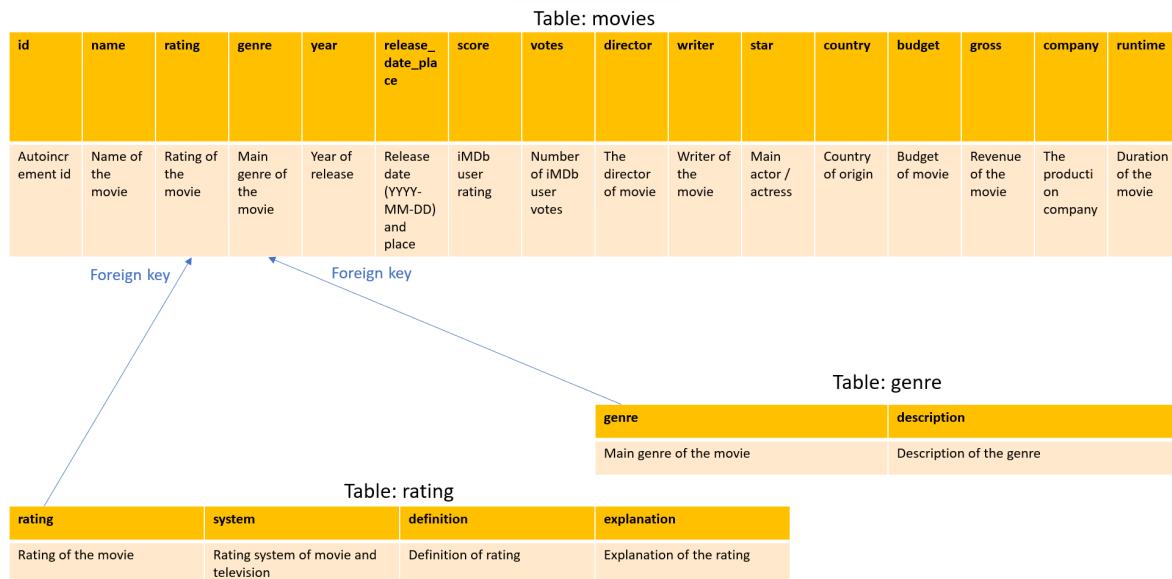
Flask web application code submission folder in Codio Flask Web Application (master): cs551p\_assessment  
Website deployment through Render: <https://cs551p-movie.onrender.com/>

## References

- [1] N. Beacham and K.Musa (2023). CS551S - Web Development Lecture day 1 - Introduction to the Module & How the Internet Works [PowerPoint slides]. Available:  
[https://abdn.blackboard.com/ultra/courses/\\_56779\\_1/outline/edit/document/\\_3587470\\_1?courseId=\\_56779\\_1&view=content](https://abdn.blackboard.com/ultra/courses/_56779_1/outline/edit/document/_3587470_1?courseId=_56779_1&view=content)
- [2] D. Grijalva, "Movie Industry," Kaggle.  
<https://www.kaggle.com/datasets/danielgrijalvas/movies?resource=download> (accessed Mar. 03, 2023).
- [3] scharlau, "GitHub - scharlau/polar\_bears\_p: A python and flask version of the parsing example using polar bear tracking data.", GitHub. [https://github.com/scharlau/polar\\_bears\\_p](https://github.com/scharlau/polar_bears_p) (accessed Mar. 03, 2023).
- [4] A. Ahmed, S. Ahmad, N. Ehsan, E. Mirza, and S. Z. Sarwar, "Agile software development: Impact on productivity and quality," in *2010 IEEE International Conference on Management of Innovation & Technology*, 2010. Accessed: Feb. 10, 2023. [Online]. Available: <http://dx.doi.org/10.1109/icmit.2010.5492703>
- [5] C. Mu (2023). CS551P - Advanced Programming - Deploying a Flask App using Render. Available:  
[https://abdn.blackboard.com/ultra/courses/\\_56776\\_1/outline/edit/document/\\_3636102\\_1?courseId=\\_56776\\_1&view=content](https://abdn.blackboard.com/ultra/courses/_56776_1/outline/edit/document/_3636102_1?courseId=_56776_1&view=content)

## Appendix

### 1. Simple database schema



## 2. Screen captures

### 2.1. version 1

#### 2.1.1. Movie Page

The screenshot shows a list of movies from the "Movie" section. Each movie entry includes its title, rating, and release year. For example, "Inglourious Basterds" is listed as PG-13 | Action | 2009 | 8.3 | 1300000.0. Other movies shown include Star Trek, Avatar, Jennifer's Body, Watchmen, Fast & Furious, G.I. Joe: The Rise of Cobra, The Hangover, Harry Potter and the Half-Blood Prince, He's Just Not That Into You, and 2012.

Title	Rating	Genre	Year	Rating Score	Budget
Inglourious Basterds	PG-13	Action	2009	8.3	1300000.0
Star Trek	PG-13	Action	2009	7.9	1300000.0
Avatar	PG-13	Action	2009	7.8	1100000.0
Jennifer's Body	R	Comedy	2009	5.3	1210000.0
Watchmen	R	Action	2009	7.6	5200000.0
Fast & Furious	PG-13	Action	2009	6.6	2710000.0
G.I. Joe: The Rise of Cobra	PG-13	Action	2009	5.8	2020000.0
The Hangover	R	Comedy	2009	7.7	1730000.0
Harry Potter and the Half-Blood Prince	PG	Action	2009	7.6	4920000.0
He's Just Not That Into You	PG-13	Comedy	2009	6.4	1650000.0
2012	PG-13	Action	2009	5.8	3600000.0

#### 2.1.2. Rating Page

The screenshot shows a list of rating categories from the "Rating System" section. Each category includes a description of the content it is intended for. For example, "G" is described as "Film Rating System | General Audiences | All Ages Admitted, Nothing that would offend parents for viewing by children". Other categories include NC-17, Not Rated, PG, PG-13, R, TV-14, TV Parental Guidelines, TVMA, TV PG, Unrated, and Not Available.

Rating	Description
G	Film Rating System   General Audiences   All Ages Admitted, Nothing that would offend parents for viewing by children
NC-17	Film Rating System   Not One 17 And Under Admitted   Clearly adult. Children are not admitted
Not Rated	Not Available   Not Available   Filmmakers did not choose to rate this movie
PG	Film Rating System   Parental Guidance Suggested   Parents urged to give "parental guidance". May contain some material parents might not like for their young children
PG-13	Film Rating System   Parents Strongly Cautioned   Parents are urged to be cautious. Some material may be inappropriate for pre-teens
R	Film Rating System   Restricted   Contains some adult material. Parents are urged to learn more about the film before taking their young children with them
TV-14	TV Parental Guidelines   Parents Strongly Cautioned -- This program contains some material that many parents would find unsuitable for children under 14 years of age. Parents are strongly urged to exercise greater care in monitoring this program and are cautioned against letting children under the age of 14 watch unattended. This program contains one or more of the following: intense violence (V), intense sexual situations (S), profane language (L), or intensely suggestive dialogue (D)
TVMA	TV Parental Guidelines   Mature Audience Only -- This program is specifically designed to be viewed by adults and therefore may be unsuitable for children under 17. This program may contain one or more of the following: graphic violence (V), explicit sexual activity (S), or crude indecent language (L)
TV PG	TV Parental Guidelines   Parental Guidance Suggested -- This program contains material that parents may find unsuitable for younger children. Many parents may want to watch it with their younger children. The theme itself may call for parental guidance and/or the program contains one or more of the following: moderate violence (V), some sexual situations (S), infrequent coarse language (L), or some suggestive dialogue (D)
Unrated	Not Available   Not Available   Filmmakers did not choose to rate this movie
Not Available	Not Available   Filmmakers did not choose to rate this movie

#### 2.1.3. Genre Page

The screenshot shows a list of movie genres from the "Movie Genre" section. Each genre includes a brief description of its typical characteristics. For example, "Action" is described as "Movies in the action genre are fast-paced and include a lot of action like fight scenes, chase scenes, and slow-motion shots. They can feature superheroes, martial arts, or exciting stunts. These high-octane films are more about the execution of the plot rather than the plot itself. Action movies are thrilling to watch and leave audience members on the edge of their seats: Cop movies, disaster films, and some spy films fall under the action category". Other genres include Adventure, Animation, Biography, Comedy, Crime, Drama, Family, and Fantasy.

Genre	Description
Action	Movies in the action genre are fast-paced and include a lot of action like fight scenes, chase scenes, and slow-motion shots. They can feature superheroes, martial arts, or exciting stunts. These high-octane films are more about the execution of the plot rather than the plot itself. Action movies are thrilling to watch and leave audience members on the edge of their seats: Cop movies, disaster films, and some spy films fall under the action category
Adventure	The adventure genre is so similar to the action genre that the billing for adventure films is sometimes action/adventure movies. Films in the adventure genre usually contain the same basic genre elements as an action movie, with the setting as the critical difference. Adventure movies are typically set in an exotic, far away, or unfamiliar locale. This category can include swashbuckler films and survival films
Animation	The animation genre is defined by inanimate objects being manipulated to appear as though they are living. This can be done in many different ways and can incorporate any other genre and sub-genre on this list
Biography	A biography (or biopic) is a story that details the life and is told by someone other than the subject. A biography will often span a large portion of the subject's life, but in some rare cases, it may focus on the time period where that person's life had the greatest effect on history and society
Comedy	Comedy films are funny and entertaining. The films in this genre have a specific premise usually involving someone in a comical situation, or humorous situations they're trying to handle. Comedy movies are less about making constant jokes and more about presenting a generally reliable, realistic story with complex characters who learn an important lesson. Mockumentary, dark comedy (or black comedy), romantic comedy, parody/spoof, and slapstick comedy are all examples of comedy subgenres
Crime	The crime genre deals with both sides of the criminal justice system but does not focus on legislative matters or civil suits and legal actions. The best crime movies often occupy moral gray areas where heroes and villains are much harder to define
Drama	The drama genre features stories with high stakes and many conflicts. They're plot-driven and demand that every character and scene move the story forward. Dramas follow a clearly defined narrative plot structure, portraying real-life scenarios or extreme situations with emotionally-driven characters. Films that fall into drama sub-genres include historical drama or costume drama, romantic drama, teen drama, medical drama, docudrama, film noir, and neo-noir
Family	Family is usually a sub-genre of drama which focuses on issues surrounding families and their inner workings
Fantasy	Films in the fantasy genre feature magical and supernatural elements that do not exist in the real world. Although some films

## 2.2. version 2

#### 2.2.1. Movie Page

The screenshot shows a list of movies from the "Movie" section. Each movie entry includes its title, rating, and release year. For example, "Inglourious Basterds" is listed as R | Adventure | 2009 | 8.3. Other movies shown include Star Trek, Avatar, Jennifer's Body, Watchmen, Fast & Furious, G.I. Joe: The Rise of Cobra, The Hangover, Harry Potter and the Half-Blood Prince, He's Just Not That Into You, and 2012.

Title	Rating	Genre	Year	Rating Score	Budget
Inglourious Basterds	R	Adventure	2009	8.3	1300000.0
Star Trek	PG-13	Action	2009	7.9	1300000.0
Avatar	PG-13	Action	2009	7.8	1100000.0
Jennifer's Body	R	Comedy	2009	5.3	1210000.0
Watchmen	R	Action	2009	6.7	5200000.0
Fast & Furious	PG-13	Action	2009	6.6	2710000.0
G.I. Joe: The Rise of Cobra	PG-13	Action	2009	5.8	2020000.0
The Hangover	R	Comedy	2009	7.7	1730000.0
Harry Potter and the Half-Blood Prince	PG	Action	2009	7.6	4920000.0
He's Just Not That Into You	PG-13	Comedy	2009	6.4	1650000.0
2012	PG-13	Action	2009	5.8	3600000.0

## 2.2.2. Rating Page

**Movie and Television**

[Movies](#) | [Rating System](#) | [Movie genre](#)

G | Film Rating System | General Audiences | All Ages Admitted. Nothing that would offend parents for viewing by children

NC-17 | Film Rating System | No One 17 And Under Admitted | Clearly adult. Children are not admitted

Not Rated | Not Available | Not Available | Filmmakers did not choose to rate this movie

PG | Film Rating System | Parental Guidance Suggested | Parents urged to give "parental guidance". May contain some material parents might not like for their young children

PG-13 | Film Rating System | Parents Strongly Cautioned | Parents are urged to be cautious. Some material may be inappropriate for pre-teens

R | Film Rating System | Restricted | Contains some adult material. Parents are urged to learn more about the film before taking their young children with them

TV-14 | TV Parental Guidelines | Parents Strongly Cautioned -- This program contains some material that many parents would find unsuitable for children under 14 years of age. | Parents are strongly urged to exercise greater care in monitoring this program and are cautioned against letting children under the age of 14 watch unattended. This program contains one or more of the following: intense violence (V), intense sexual situations (S), strong coarse language (L), or intensely suggestive dialogue (D).

TV-MA | TV Parental Guidelines | Mature Audience Only -- This program is specifically designed to be viewed by adults and therefore may be unsuitable for children under 17. | This program may contain one or more of the following: graphic violence (V), explicit sexual activity (S), or crude and/or profane language (L).

TV-PG | TV Parental Guidelines | Parental Guidance Suggested -- This program contains material that parents may find unsuitable for younger children. | Many parents may want to watch it with their younger children. The theme itself may call for parental guidance and/or the program contains one or more of the following: moderate violence (V), some sexual situations (S), infrequent coarse language (L), or some suggestive dialogue (D).

Unrated | Not Available | Not Available | Filmmakers did not choose to rate this movie

| Not Available | Not Available | Filmmakers did not choose to rate this movie

## 2.2.3. Genre Page

**Movie Genre**

[Movies](#) | [Rating System](#) | [Movie genre](#)

Action | Movies in the action genre are fast-paced and include a lot of action like fight scenes, chase scenes, and slow-motion shots. They can feature superheroes, martial arts, or exciting chases. These high-octane films are more about the execution of the plot rather than the plot itself. Action movies are thrilling to watch and leave audience members on the edge of their seats. Cop movies, disaster films, and some spy films fall under the action category.

Adventure | The adventure genre is so similar to the action genre that the billing for adventure films is sometimes action-adventure movies. Films in the adventure genre usually contain the same basic genre elements as an action movie, with the setting as the critical difference. Adventure movies are typically set in an exotic, far away, or unfamiliar locale. This category can include swashbuckler films and survival films.

Animation | The animation genre is defined by inanimate objects being manipulated to appear as though they are living. This can be done in many different ways and can incorporate any other genre and sub-genre on this list.

Biography | A biography (or biopic) is a story that details the life and is told by someone other than the subject. A biography will often span a large portion of the subject's life, but in some rare cases, it may focus on the time period where that person's life had the greatest effect on history and society.

Comedy | Comedy films are funny and entertaining. The films in this genre around a comedic premise—usually putting someone in a challenging, amusing, or humorous situation they're not prepared to handle. Good comedy movies are less about making constant jokes and more about presenting a universally relatable, real-life story with complex characters who learn an important lesson. Mockumentary, dark comedy (or black comedy), romantic comedy, parody/spoof, and slapstick comedy are all examples of comedy subgenres.

Crime | The crime genre deals with both sides of the criminal justice system but does not focus on legislative matters or civil suits and legal actions. The best crime movies often occupy moral gray areas where heroes and villains are much harder to define.

Drama | Drama genre features stories with high stakes and many conflicts. They're plot-driven and demand that every character and scene move the story forward. Drama follows a clearly defined narrative plot structure, portraying real-life scenarios or extreme situations with emotionally-driven characters. Films that fall into drama sub-genres include historical drama or costume drama, romantic drama, teen drama, medical drama, docudrama, film noir, and neo-noir.

Family | Family is usually a sub-genre of drama which focuses on issues surrounding families and their inner workings.

Fantasy | Films in the fantasy genre feature magical and supernatural elements that do not exist in the real world. Although some films juxtapose a real-world setting with fantastical elements, many create entirely imaginary universes with their own laws, logic, and populations of imaginary races and creatures. Like science fiction films, fantasy films are speculative but unrelated to reality or scientific fact. High fantasy, fairy tales, and magical realism are all fantasy subgenres.

Horror | Horror films feature elements that leave people with an overwhelming sense of fear and dread. Horror movies often include serial killers or monsters as

## 2.2.4. Movie Detail Page

**Movie Details**

[Movies](#) | [Rating System](#) | [Movie genre](#)

Inglourious Basterds | R | Adventure | 2009 | August 21, 2009 (United States) | 8.3 | 1300000.0 | Quentin Tarantino | Brad Pitt | Quentin Tarantino | United States | 7000000.0 | 32145747.0 | Universal Pictures | 153.0

## 2.3. version 3

### 2.3.1. Movie Page

**Movies from 2009-2020**

[Movies](#) | [Rating System](#) | [Movie genre](#)

Movie Title	Rating	Genre	Year	iMDb Score
Inglourious Basterds	R	Adventure	2009	8.3
Star Trek	PG-13	Action	2009	7.9
Avatar	PG-13	Action	2009	7.8
Jennifer's Body	R	Comedy	2009	5.3
Watchmen	R	Action	2009	7.6
Fast & Furious	PG-13	Action	2009	6.6
G.I. Joe: The Rise of Cobra	PG-13	Action	2009	5.8
The Hangover	R	Comedy	2009	7.7
Harry Potter and the Half-Blood Prince	PG	Action	2009	7.6
He's Just Not That Into You	PG-13	Comedy	2009	6.4
2012	PG-13	Action	2009	5.8
The Lovely Bones	PG-13	Drama	2009	6.7
State of Play	PG-13	Crime	2009	7.1
Zombieland	R	Adventure	2009	7.6
500 Days of Summer	PG-13	Comedy	2009	7.7
Sherlock Holmes	PG-13	Action	2009	7.6
District 9	R	Action	2009	7.9
The Blind Side	PG-13	Biography	2009	7.6
Up	PG	Animation	2009	8.2

### 2.3.2. Rating Page

Movie Rating			
Rating	System	Definition	Explanation
G	Film Rating System	General Audiences	All Ages Admitted. Nothing that would offend parents for viewing by children
PG	Film Rating System	Parental Guidance Suggested	Parents urged to give "parental guidance". May contain some material parents might not like for their young children
PG-13	Film Rating System	Parents Strongly Cautioned	Parents are urged to be cautious. Some material may be inappropriate for pre-teens
R	Film Rating System	Restricted	Contains some adult material. Parents are urged to learn more about the film before taking their young children with them
NC-17	Film Rating System	No One 17 And Under Admitted	Clearly adult. Children are not admitted
TV-PG	TV Parental Guidelines	Parental Guidance Suggested -- This program contains material that parents may find unsuitable for younger children.	Many parents may want to watch it with their younger children. The theme itself may call for parental guidance and/or the program contains one or more of the following: moderate violence (V), some sexual situations (S), infrequent coarse language (L), or some suggestive dialogue (D).
TV-14	TV Parental Guidelines	Parents Strongly Cautioned -- This program contains some material that many parents would find unsuitable for children under 14 years of age.	Parents are strongly urged to exercise greater care in monitoring this program and are cautioned against letting children under the age of 14 watch unattended. This program contains one or more of the following: intense violence (V), intense sexual situations (S), strong coarse language (L), or intensely suggestive dialogue (D).
		Mature Audience Only -- This program is specifically designed to	

### 2.3.3. Genre Page

Movie Genre	
Genre	Description
Action	Movies in the action genre are fast-paced and include a lot of action like fight scenes, chase scenes, and slow-motion shots. They can feature superheroes, martial arts, or exciting stunts. These high-octane films are more about the execution of the plot rather than the plot itself. Action movies are thrilling to watch and leave audience members on the edge of their seats. Cop movies, disaster films, and some spy films fall under the action category.
Adventure	The adventure genre is so similar to the action genre that the billing for adventure films is sometimes action/adventure movies. Films in the adventure genre usually contain the same basic genre elements as an action movie, with the setting as the critical difference. Adventure movies are typically set in an exotic, far away, or unfamiliar locale. This category can include swashbuckler films and survival films.
Animation	The animation genre is defined by inanimate objects being manipulated to appear as though they are living. This can be done in many different ways and can incorporate any other genre and sub-genre on this list.
Biography	A biography (or biopic) is a story that details the life and is told by someone other than the subject. A biography will often span a large portion of the subject's life, but in some rare cases, it may focus on the time period where that person's life had the greatest effect on history and society.
Comedy	Comedy films are funny and entertaining. The films in this genre center around a comedic premise—usually putting someone in a challenging, amusing, or humorous situation they're not prepared to handle. Good comedy movies are less about making constant jokes and more about presenting a universally relatable, real-life story with complex characters who learn an important lesson. Mockumentary, dark comedy (or black comedy), romantic comedy, parody/spoof, and slapstick comedy are all examples of comedy subgenres.
Crime	The crime genre deals with both sides of the criminal justice system but does not focus on legislative matters or civil suits and legal actions. The best crime movies often occupy moral gray areas where heroes and villains are much harder to define.
	The drama genre features stories with high stakes and many conflicts. They're plot-driven and demand that every character

### 2.3.4. Movie Detail Page

Movie Details		
Movies	Rating System	Movie genre
Movie Title	Harry Potter and the Half-Blood Prince	
Rating of the movie	PG	
Main Genre	Action	
Released Year	2009	
Released date and Country	July 15, 2009 (United States)	
IMDb Score	7.6	
Number of IMDb user votes	492000.0	
Director	David Yates	
Writer	Steve Kloves	
Main actor/actress	Daniel Radcliffe	
Country of origin	United Kingdom	
Budget of the movie	250000000.0	
Revenue of the movie	934454096.0	
Production Company	Warner Bros.	
Duration of the movie	153.0	

## 2.4. version 4

### 2.4.1. Movie Page

Movies from 2009-2020				
Movie Title	Rating	Genre	Year	IMDb Score
Inglourious Basterds	R	Adventure	2009	8.3
Star Trek	PG-13	Action	2009	7.9
Avatar	PG-13	Action	2009	7.8
Jennifer's Body	R	Comedy	2009	5.3
Watchmen	R	Action	2009	7.6
Fast & Furious	PG-13	Action	2009	6.6
G.I. Joe: The Rise of Cobra	PG-13	Action	2009	5.8
The Hangover	R	Comedy	2009	7.7
Harry Potter and the Half-Blood Prince	PG	Action	2009	7.6
He's Just Not That Into You	PG-13	Comedy	2009	6.4
2012	PG-13	Action	2009	5.8
The Lovely Bones	PG-13	Drama	2009	6.7
State of Play	PG-13	Crime	2009	7.1
Zombieland	R	Adventure	2009	7.6
500 Days of Summer	PG-13	Comedy	2009	7.7
Sherlock Holmes	PG-13	Action	2009	7.6
District 9	R	Action	2009	7.9
The Blind Side	PG-13	Biography	2009	7.6
Up	PG	Animation	2009	8.2

## 2.4.2. Rating Page

Rating	System	Definition	Explanation
G	Film Rating System	General Audiences	All Ages Admitted, Nothing that would offend parents for viewing by children
PG	Film Rating System	Parental Guidance Suggested	Parents urged to give "parental guidance". May contain some material parents might not like for their young children
PG-13	Film Rating System	Parents Strongly Cautioned	Parents are urged to be cautious. Some material may be inappropriate for pre-teens
R	Film Rating System	Restricted	Contains some adult material. Parents are urged to learn more about the film before taking their young children with them
NC-17	Film Rating System	No One 17 And Under Admitted	Clearly adult. Children are not admitted
TV-PG	TV Parental	Parental Guidance Suggested -- This program contains material that	Many parents may want to watch it with their younger children. The theme itself may call for parental guidance and/or the program contains one or more of the

## 2.4.3. Genre Page

Genre	Description
Action	Movies in the action genre are fast-paced and include a lot of action like fight scenes, chase scenes, and slow-motion shots. They can feature superheroes, martial arts, or exciting stunts. These high-octane films are more about the execution of the plot rather than the plot itself. Action movies are thrilling to watch and leave audience members on the edge of their seats. Cop movies, disaster films, and some spy films fall under the action category.
Adventure	The adventure genre is so similar to the action genre that the billing for adventure films is sometimes action/adventure movies. Films in the adventure genre usually contain the same basic genre elements as an action movie, with the setting as the critical difference. Adventure movies are typically set in an exotic, far away, or unfamiliar locale. This category can include swashbuckler films and survival films.
Animation	The animation genre is defined by inanimate objects being manipulated to appear as though they are living. This can be done in many different ways and can incorporate any other genre and sub-genre on this list.
Biography	A biography (or biopic) is a story that details the life and is told by someone other than the subject. A biography will often span a large portion of the subject's life, but in some rare cases, it may focus on the time period where that person's life had the greatest effect on history and society.

## 2.4.4. Movie Detail Page

Movie Title	The Peanuts Movie
Rating of the movie	G
Main Genre	Animation
Released Year	2015
Released date and Country	November 6, 2015 (United States)
iMDB Score	7.1
Number of iMDB user votes	43000.0
Director	Steve Martino
Writer	Craig Schulz
Main actor/actress	Noah Schnapp
Country of origin	United States
Budget of the movie	99000000.0
Revenue of the movie	24623113.0
Production Company	Twentieth Century Fox Animation
Duration of the movie	88.0

### 2.4.5. Rating Movie Page

**Movie Rating**

Movies Rating System Movie genre

**G**

System: Film Rating System  
Definition: General Audiences  
Explanation: All Ages Admitted, Nothing that would offend parents for viewing by children

Movie Title with this Rating	Genre	Year	IMDb Score
Alvin and the Chipmunks: Chipwrecked	Animation	2011	4.3
Cars 2	Animation	2011	6.1
Cars 3	Animation	2017	6.7
Gnomeo & Juliet	Animation	2011	5.9
Hannah Montana: The Movie	Comedy	2009	4.6
Monsters University	Animation	2013	7.2
Ramona and Beezus	Comedy	2010	6.5
Rio 2	Animation	2014	6.3
The Peanut's Movie	Animation	2015	7.1
The Princess and the Frog	Animation	2009	7.1
The Secret World of Arrietty	Animation	2010	7.6
Toy Story 3	Animation	2010	8.2
Toy Story 4	Animation	2019	7.7
Winnie the Pooh	Animation	2011	7.2

### 2.4.6. Genre Movie Page

**Movie Genre**

Movies Rating System Movie genre

**Thriller**

Description: Thrillers expertly blend mystery, tension, and anticipation into one exciting story. Successful thrillers are well-paced, often introducing red herrings, divulging plot twists, and revealing information at the exact right moments to keep the audience intrigued. Thrillers often include a "ticking clock" aspect, where the stakes are against a finite amount of time. Crime films, political thrillers, and techno-thrillers are all featured in the thriller genre.

Movie Title in this genre	Rating	Year	IMDb Score
No Good Deed	PG-13	2014	5.6
The Boy Next Door	R	2015	4.7
The Intruder	PG-13	2019	5.6

### 3. Complete page navigation map between page templates



4. Photo for errors shown during empty values detected during database generation

4.1. ValueError caught for empty values input to float datatype

```
    'tuba', 'United States', '', 'Abominable Pictures', '90.0']
['Love by Drowning', 'R', 'Drama', '2020', 'November 6, 2020 (United States)', '', '', 'Justin
ited States', '1000000.0', '', 'Dow Jazz Films', '121.0']
Traceback (most recent call last):
  File "parse_csv.py", line 71, in <module>
    score=float(row[5])
ValueError: could not convert string to float:
(.venv) codio@sierraviolin-learncombine:~/workspace/cs551p_assessment$
```

4.2. Error handling for ValueError to catch empty values input to float datatype

```
    'tuba', 'Germany', '0000000.0', '17000000.0', 'New Line Cinema', '125.0'
['2012', 'PG-13', 'Action', '2009', 'November 13, 2009 (United States)', '5.8', '3600000.0'
'United States', '20000000.0', '791217826.0', 'Columbia Pictures', '158.0']
['The Lovely Bones', 'PG-13', 'Drama', '2009', 'January 15, 2010 (United States)', '6.7',
sz', 'United States', '65000000.0', '93621340.0', 'Dreamworks Pictures', '135.0']
['State of Play', 'PG-13', 'Crime', '2009', 'April 17, 2009 (United States)', '7.1', '14500
Russell Crowe', 'United States', '', '87812371.0', 'Universal Pictures', '127.0']
ValueError caught
(.venv) codio@sierraviolin-learncombine:~/workspace/cs551p_assessment$
```

4.3. Error handling with 'pass' when catching empty values input to float datatype

```
'United States', '20000000.0', '791217826.0', 'Columbia Pictures', '158.0']
['The Lovely Bones', 'PG-13', 'Drama', '2009', 'January 15, 2010 (United States)', '6.7',
'United States', '65000000.0', '93621340.0', 'Dreamworks Pictures', '135.0']
['State of Play', 'PG-13', 'Crime', '2009', 'April 17, 2009 (United States)', '7.1', '145000.0',
Russell Crowe', 'United States', '', '87812371.0', 'Universal Pictures', '127.0']
codio@sierraviolin-learncombine:~/workspace/cs551p_assessment$
```

5. Photo for errors shown during deployment of the web application in Render

5.1. ERROR: Could not find a version that satisfies the requirement dataclasses==0.8 (from -r requirements.txt (line 3))  
(from versions: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6)

```
Feb 27 10:50:38 AM --> Cloning from https://github.com/Cloudy030/cs551p_assessment...
Feb 27 10:50:39 AM --> Checking out commit 5613a87acf580a2d7b64fee07bf3caff0969bed4 in branch main
Feb 27 10:50:44 AM --> Using Python version: 3.7.10
Feb 27 10:50:47 AM --> Running build command 'pip install -r requirements.txt'...
Feb 27 10:50:47 AM Collecting behave==1.2.6
Feb 27 10:50:48 AM Downloading behave-1.2.6-py2.py3-none-any.whl (136 kB)
Feb 27 10:50:49 AM Collecting click==0.0.4
Feb 27 10:50:49 AM Downloading click-0.0.4-py3-none-any.whl (97 kB)
Feb 27 10:50:49 AM ERROR: Could not find a version that satisfies the requirement dataclasses==0.8
(from -r requirements.txt (line 3)) (from versions: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6)
Feb 27 10:50:49 AM ERROR: No matching distribution found for dataclasses==0.8 (from -r requirements
.txt (line 3))
Feb 27 10:50:49 AM WARNING: You are using pip version 20.1.1; however, version 23.0.1 is available.
Feb 27 10:50:49 AM You should consider upgrading via the '/opt/render/project/src/.venv/bin/python
-m pip install --upgrade pip' command.
Feb 27 10:50:49 AM --> Build failed 🚫
Feb 27 10:50:49 AM --> Generating container image from build. This may take a few minutes...
```

5.2. ERROR: Could not find a version that satisfies the requirement pkg\_resources==0.0.0 (from -r requirements.txt (line 13)) (from version: none)

```
Feb 27 01:26:30 PM Downloading importlib_metadata-4.0.3-py3-none-any.whl (17 kB)
Feb 27 01:26:30 PM Collecting itsdangerous==2.0.1
Feb 27 01:26:30 PM Downloading itsdangerous-2.0.1-py3-none-any.whl (18 kB)
Feb 27 01:26:31 PM Collecting Jinja2==3.0.3
Feb 27 01:26:31 PM Downloading Jinja2-3.0.3-py3-none-any.whl (133 kB)
Feb 27 01:26:31 PM Collecting MarkupSafe==2.0.1
Feb 27 01:26:31 PM Downloading MarkupSafe-2.0.1-cp37-cp37m-manylinux2010_x86_64.whl (31 kB)
Feb 27 01:26:31 PM Collecting parse==1.19.0
Feb 27 01:26:31 PM Downloading parse-1.19.0.tar.gz (30 kB)
Feb 27 01:26:31 PM Collecting parse-type==0.6.0
Feb 27 01:26:31 PM Downloading parse_type-0.6.0-py3-none-any.whl (32 kB)
Feb 27 01:26:31 PM ERROR: Could not find a version that satisfies the requirement pkg_resources==0.
0.0 (from -r requirements.txt (line 13)) (from versions: none)
Feb 27 01:26:31 PM ERROR: No matching distribution found for pkg_resources==0.0.0 (from -r require
ments.txt (line 13))
Feb 27 01:26:31 PM WARNING: You are using pip version 20.1.1; however, version 23.0.1 is available.
Feb 27 01:26:31 PM You should consider upgrading via the '/opt/render/project/src/.venv/bin/python
-m pip install --upgrade pip' command.
Feb 27 01:26:31 PM --> Build failed 🚫
Feb 27 01:26:31 PM --> Generating container image from build. This may take a few minutes...
```