Hands-on lab

Lab: Databinding (MVVM)

December 2015

Exercise 1: Single Object Data Binding

Step 1 – Create Universal Windows Application

1. Create a new Solution “StarWarsUWP” with the following subprojects:
   - StarWarsUWP.App : Universal Windows (Blank App)
   - StarWars.Domain : model classes (Class Library – Universal Windows)
   - StarWars.DAL : repository classes (Class Library – Universal Windows)
2. Move the SWMovie and SWPlanet classes from the previous module to StarWars.Domain (possibly rename the namespace of the classes to match the projectname)
3. Create an IStarWarsRepository interface and SWAPIRepository class in the StarWars.DAL project and implement the following method (retrieve a movie by its url from swapi.co):
   `public SWMovie GetMovieByUrl(string url)`
4. Remove frame rate counters from the application in debug mode by commenting out the following lines in App.xaml.cs:

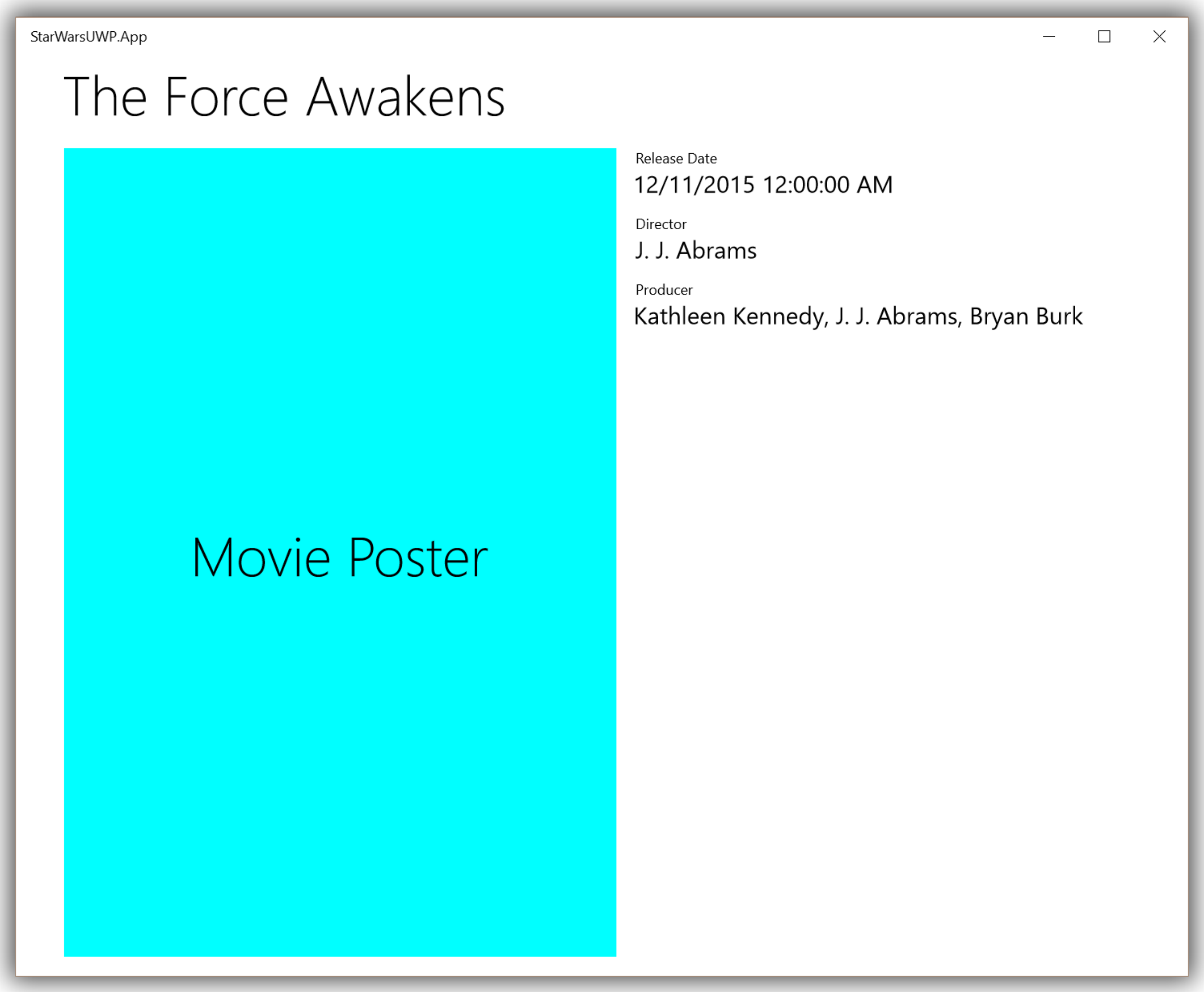
```
protected override void OnLaunched(LaunchActivatedEventArgs e)
{

#if DEBUG
        //if (System.Diagnostics.Debugger.IsAttached)
        //{
        //    this.DebugSettings.EnableFrameRateCounter = true;
        //}
#endif

        Frame rootFrame = Window.Current.Content as Frame;
...
}
```

Step 2 – Create a GUI

Make a GUI that looks like the following (application is running). Refresh your skills with layout techniques (Grid, StackPanel). A new and interesting new layout class is *RelativePanel* (only available for UWP, not WPF).

More info: http://blogs.u2u.be/diederik/post/2015/07/19/A-lap-around-the-RelativePanel-Control.aspx

Tip: using pre-defined style like *Style="{ThemeResource CaptionTextBlockStyle}"* helps with scaling fonts later across multiple devices.



The Force Awakens

Release Date
12/11/2015 12:00:00 AM

Director
J. J. Abrams

Producer
Kathleen Kennedy, J. J. Abrams, Bryan Burk

Step 3 – Databind with a single object

Handle the Loaded event of the page to instantiate a SWMovie object and bind it to the page.

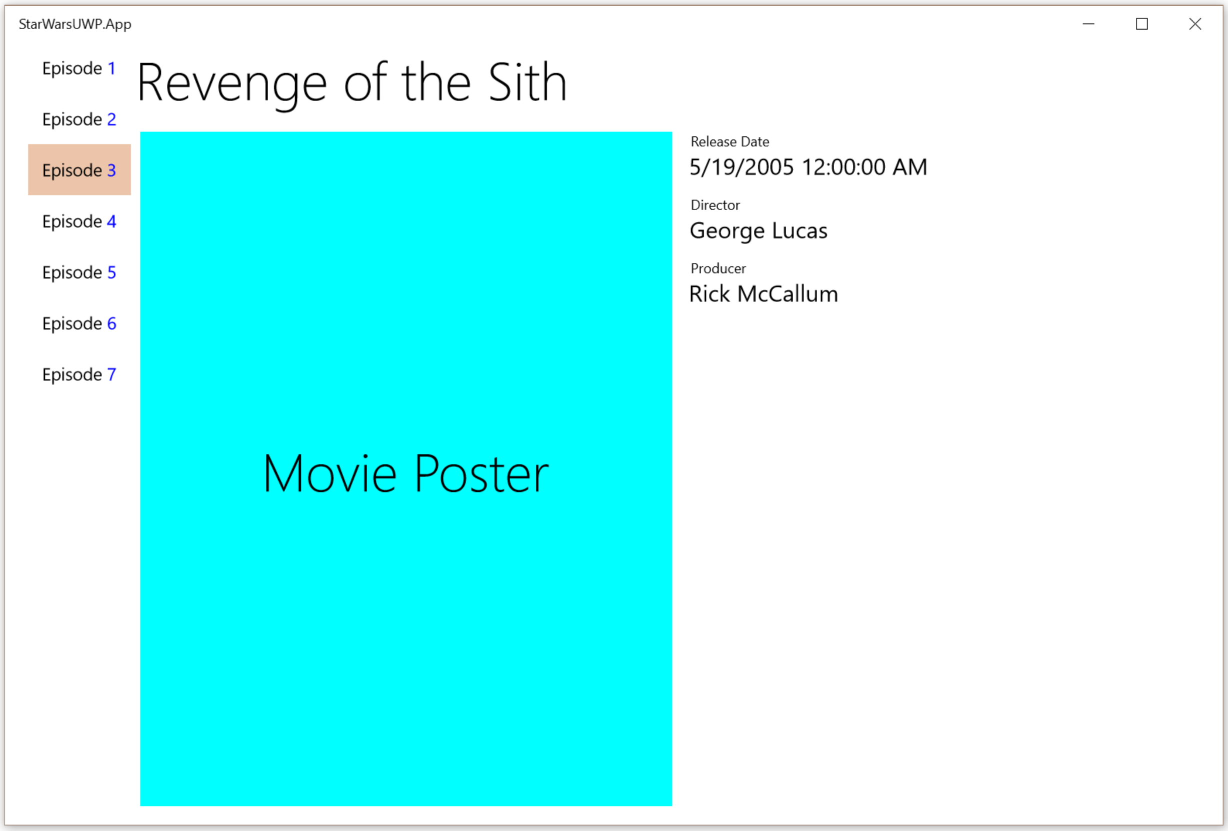
Exercise 2: Object Collection Data Binding

Step 1 – Extend the DAL

1. Extend the IStarWarsRepository interface with the following method

```
List<SWMovie> GetAllSWMovies();
```

2. Implement this method in the correct class (SWAPIRepository)
3. Create a ListView and bind to the list of all movies
4. If you tap (or click) on a list, the correct details are displayed



Revenge of the Sith

Release Date
5/19/2005 12:00:00 AM

Director
George Lucas

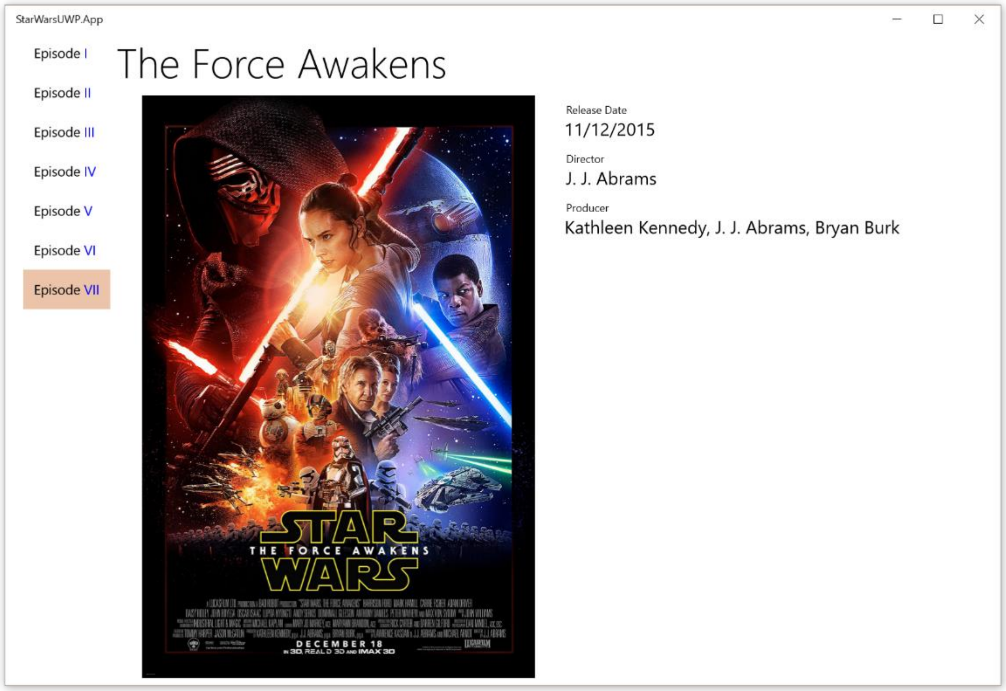
Producer
Rick McCallum

Exercise 3: Converters

Implement the following converters, store these in a folder called

1. A DateConverter that formats the Release Date property as dd/MM/YYYY
2. A RomanConvert that converts the Episode ID to a Roman number, eg 7 → VII
3. A PosterConverter that loads a Bitmap. The name corresponds to a title of a movie, but with all small caps and underscores, e.g. The Force Awakens → the_force_awakens.zip
   The following code will be usefull:

   C#
   ```
   BitmapImage img = new BitmapImage();
   var fname = ...
   img.UriSource = new Uri("ms-appx:///Posters/" + fname + ".jpg");
   ```



The Force Awakens

Release Date
11/12/2015

Director
J. J. Abrams

Producer
Kathleen Kennedy, J. J. Abrams, Bryan Burk

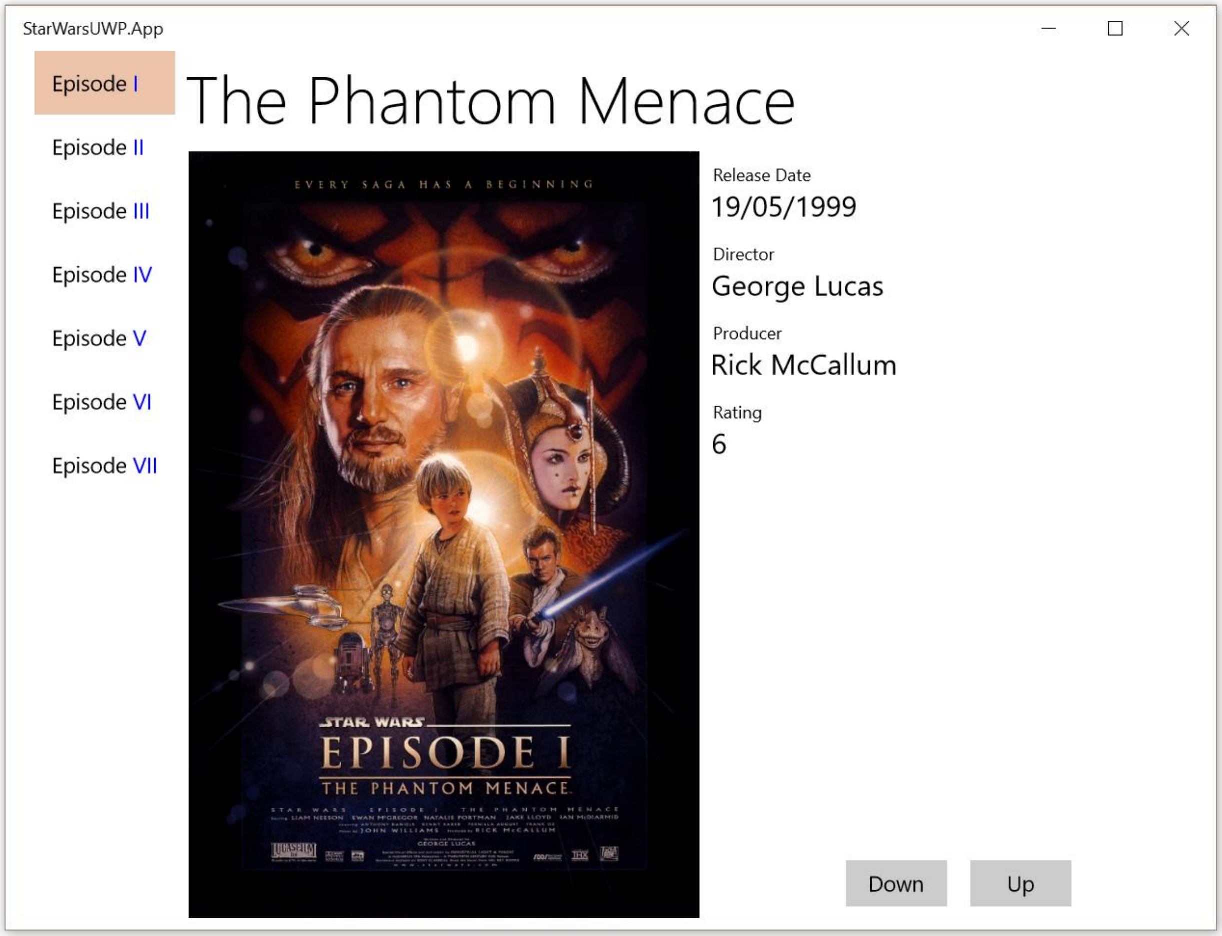
Exercise 4: Change management

Add a property called Rating and implement INotifyPropertyChanged accordingly. Use the [CallerMemberName] annotation to avoid spelling error bugs. More info:

http://csharp.2000things.com/tag/inotifypropertychanged/

Now modify the program: add two buttons (Up and Down) that increment/decrement the rating with steps of 0.5 A valid rating should stay between 0 and 10.

If you click the button, you change the property of the DataContext Movie object. If everything went correct, the UI will update itself automatically.


StarWarsUWP.App

- Episode I
- Episode II
- Episode III
- Episode IV
- Episode V
- Episode VI
- Episode VII

The Phantom Menace

Release Date
19/05/1999

Director
George Lucas

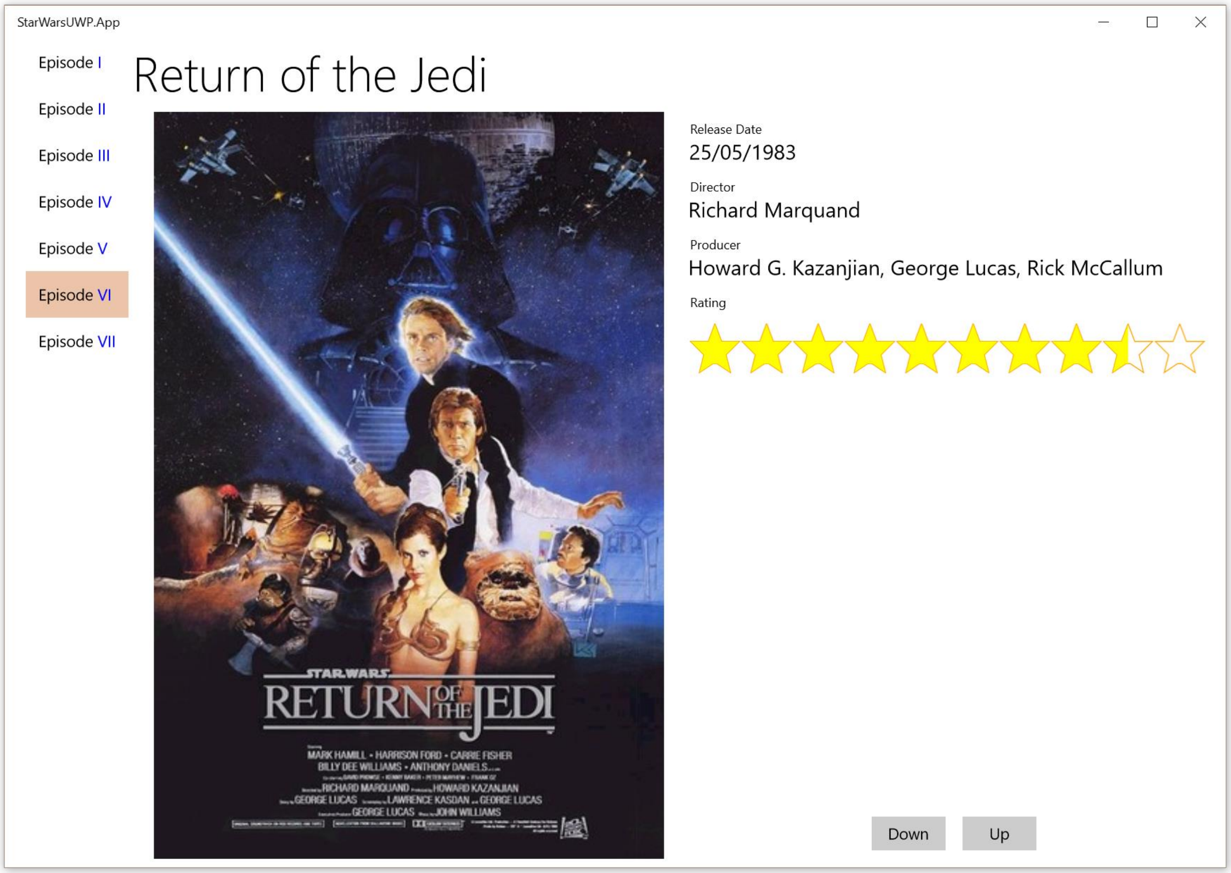
Producer
Rick McCallum

Rating
6

Exercise 5: Custom Control

Now for some more fun, add the following control to your project

https://github.com/BratchedDev/Bratched.Tools.RatingControl



Exercise 6: Responsive Layout

Finally we dig a little into creating a responsive layout. Read about it in the following articles:

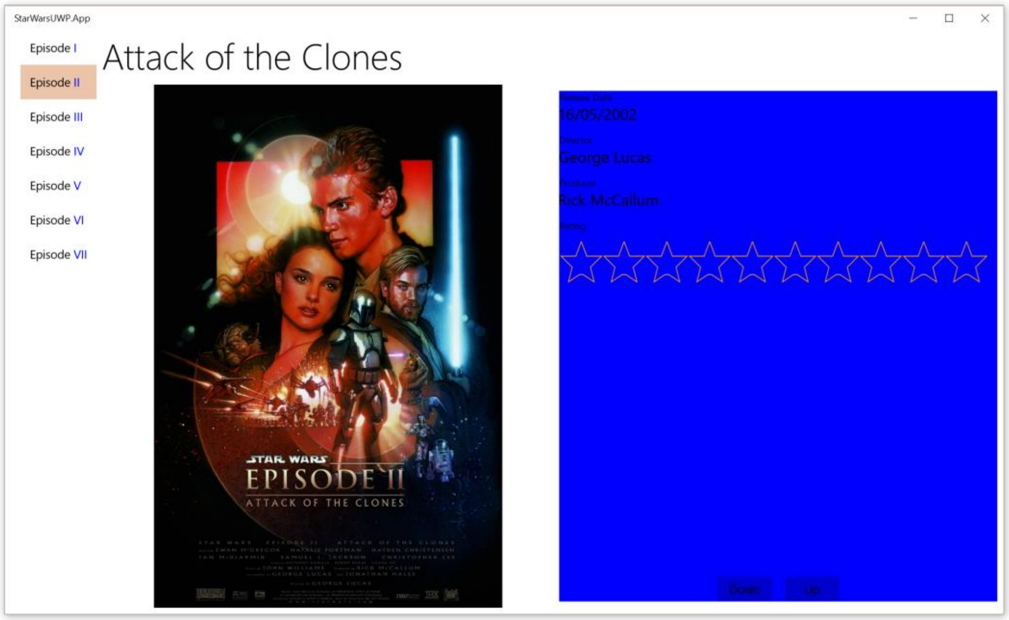
https://msdn.microsoft.com/en-us/library/windows/apps/dn958435.aspx?f=255&MSPPError=-2147217396

https://blogs.windows.com/buildingapps/2015/09/01/make-your-app-look-great-on-any-size-screen-or-window-10-by-10/

http://blogs.u2u.be/diederik/post/2015/07/28/A-lap-around-Adaptive-Triggers.aspx

Now modify the app using Visual State Triggers: if you resize below a size of 720 pixels there is a change in color. This proves your trigger fires:

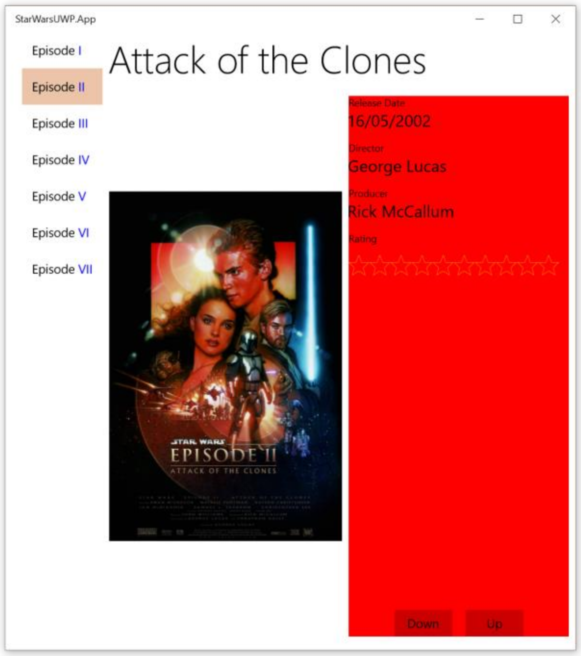
Landscape:



Attack of the Clones

Release Date
16/05/2002
Director
George Lucas
Producer
Rick McCallum
Rating

Portrait

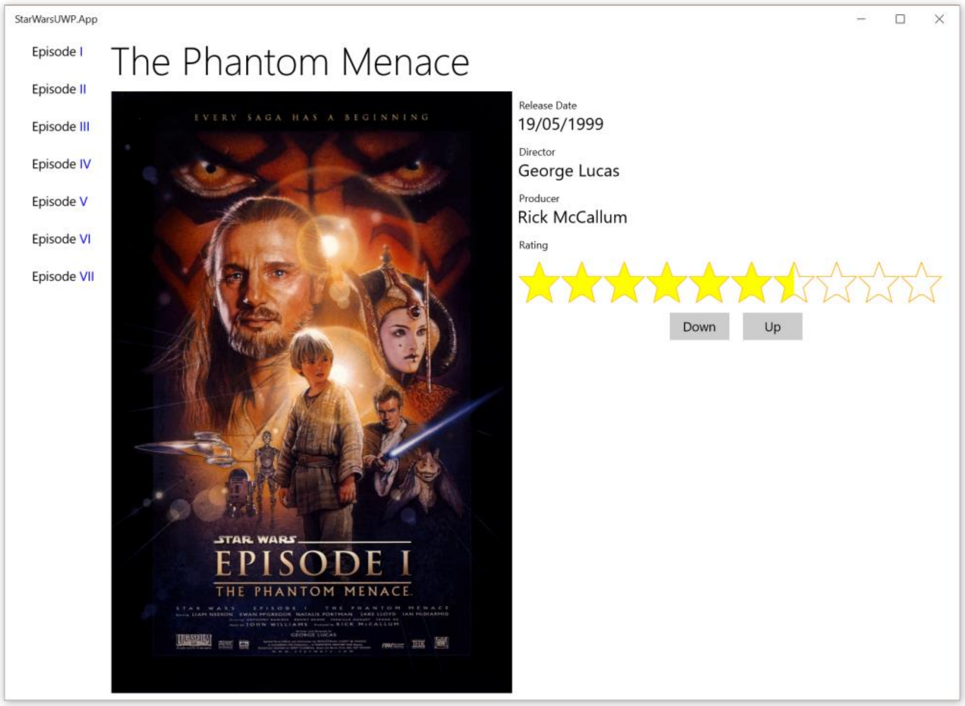


Attack of the Clones

Release Date
16/05/2002
Director
George Lucas
Producer
Rick McCallum
Rating

Then create some visual appealing layouts in both states:

Landscape


StarWarsUWP.App

Episode I
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Episode VII

The Phantom Menace

Release Date
19/05/1999

Director
George Lucas

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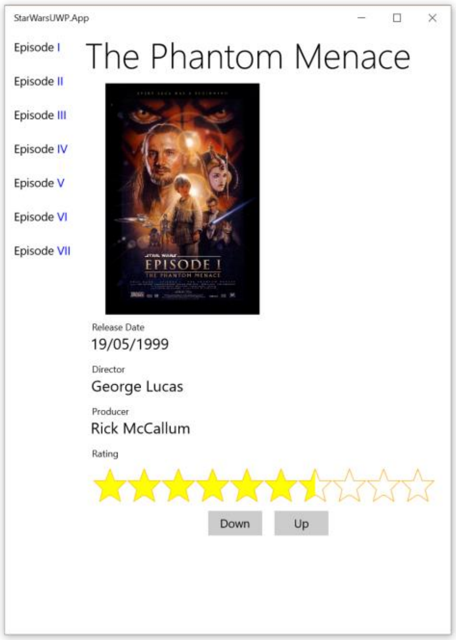
Rating

Portrait


StarWarsUWP.App

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