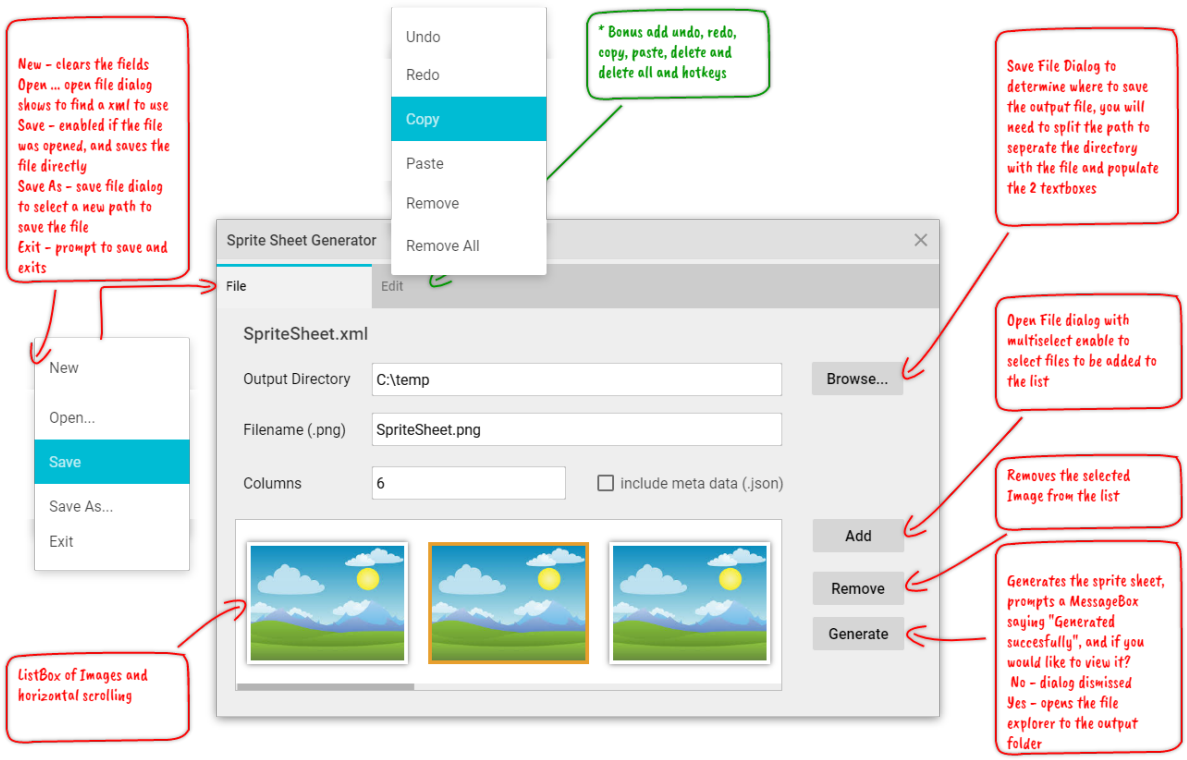
LaSalle College
Vancouver

VGP 232 Game Tools and Pipeline

Assignment 3

WPF Sprite Sheet Creator Desktop Application

Using the class library (TextureAtlasLib) attached in this assignment and WPF, create a sprite sheet generator where it takes a folder input path, and the number of columns, and generates a sprite sheet in the output file with checkbox option to save the metadata json file.



There will be 4 TextBlocks labeled with the following text:

- <name of project>.xml
- Output Directory
- Filename (.png)
- Columns

There will be 3 TextBoxes with the following names:

- tbOutputDir
- tbOutputFile
- tbColumns

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There will be 4 Buttons with the follow text and behaviour

- **Browse…** - for setting the output path using a SaveFileDialog
- **Add** - adds png Images to the list using a OpenFileDialog with **Multiselect** set to true, note you will be retrieve the files list by using **FileNames** instead of **Filename**
- https://docs.microsoft.com/en-us/dotnet/api/system.windows.forms.openfiledialog.multiselect?view=netframework-4.6
- **Remove** - removes the selected item in the list box
- **Generate** - triggers the TextureAtlasLib library to Generate the SpriteSheet as png with the information provided from the text fields and listbox)
    - When it succeeds, it will show a **MessageBox** indicating that the Spritesheet (and metadata if checked) was generated successfully and ask if the user would like to view the output.
        - If no, then closes the message box
        - If yes, then open the file explorer to the output directory
    - *Bonus: show a progress bar as the images are being processed https://www.wpf-tutorial.com/misc-controls/the-progressbar-control/
    - https://docs.microsoft.com/en-us/dotnet/api/system.componentmodel.backgroundworker?view=netframework-4.6

There is a file **menu** at the top with the following menu items with the following headers:

- **New** - clears all the fields (show message box asking if the user would like to save first if there's an existing project)
- **Open** - shows the open file dialog to select a sprite sheet project xml file
- **Save** - disabled unless a file is opened or was saved from Save As prior
- **Save As** - shows the save file dialog to select the location to save the sprite sheet project xml file and update the textblock for the SpriteSheet.xml
- **Exit** - exits the app or shows a message box asking if you would like to save the project before you exit

https://www.wpf-tutorial.com/common-interface-controls/menu-control/

ListBox of Images or ListItemTemplate with an Image and data binding
To make the Listbox scroll horizontally instead of vertically you will need to set the

```
<ListBox>
<ListBox.ItemsPanel>
  <ItemPanelTemplate>
    <StackPanel Orientation="Horizontal" IsItemsHost="True" />
</ItemsPanelTemplate>
</ListBox.ItemsPanel>
</ListBox>
```

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https://stackoverflow.com/questions/1292516/wpf-listbox-that-lays-out-its-items-horizontally

The SpriteSheet Project class has the following properties:

- string OutputDirectory
- string OutputFile
- List<string> ImagePaths
- bool includeMetaData

The sprite sheet project can be saved and loaded as **XML**.

When you Load the xml file, it'll restore the state it was in when it was saved i.e. the images showing in the listbox, however, if the image no longer exists, then it'll be skipped and a warning MessageBox with the list of images missing and removed from the list.

*Bonus: add the edit menu with with undo, redo, copy, paste, remove, and remove all with hotkeys, you will need to use commands
https://stackoverflow.com/questions/779758/undo-redo-in-wpf
https://www.wpftutorial.net/UndoRedo.html

*Bonus: add validation so that the input must correct before you can click the "Generate" button, or use Command.
https://www.wpf-tutorial.com/commands/using-commands/

Due date

Next class, week 6 (at the start of class 6:30pm)

Submission

Implement the answers in a new project with the name "Assignment3". This project should be submitted through committing and pushing through GIT to your VGP232 repository which you shared with the instructor.

Grading

Marks: Out of 100 (10% of final grade)

(60) Functional: Does it compile? Does it meet the requirements and work? Does it give the correct results?

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(25) Error Handling: Does your application handle bad input? If so, does it handle failures and exceptions gracefully or does it crash?

(15) Naming convention & Comments: Does it follow the coding standards? Are your variables and method names descriptive? Did you leave descriptive comments on methods that does not have obvious functionality?

Coding Standard

C#
https://docs.microsoft.com/en-us/dotnet/csharp/programming-guide/inside-a-program/coding-conventions

Late Assignments

After the due date, the student will no longer be able to submit their assignment and will receive a 0 as I will go over the solution in the next class.