Change request log

1 Team

Team Name: Deep Mind

Team Members and Roles:

Ujwal Srinivasa- Concept location, Impact analysis, actualization, Reverse engineering and validation

Nisha Rani - Concept Location and Reverse engineering.

2 Change Request

#ps3.

Description: The Rotate module is a feature that allows the user to rotate pages in certain degrees like 90 clock,180 clock or 90 counter clock. Users have the freedom to give page range that describes the range of pages that must be rotated within the document. Rotate Module also has the feature that allows the user to rotate the EVEN, ODD or ALL_PAGES within the document. The issue in the Rotate Document is that , rotate module flips all pages within the specified range, even if the user only wants the even pages or odd pages within the range. The module flips the even or odd pages only if no range is mentioned by the user. The change request here is that the rotate module allows the user to even or odd or all pages within the range of pages from the document.

3 Concept Location

Step #	Description	Rationale
1	We ran the application PDFsam.	
2	We interacted with the rotate feature.	We tried to rotate pages in a document, by specifying range and also features like ODD/EVEN/ALL. For the document we uploaded, we specified a range and also gave ODD or EVEN features, but the module returned the document with all the pages being flipped in the range instead of ODD/ EVEN pages.
3	We located all the java files related to rotate module within the pdfsam-rotate module.	
4	We began with the RotateModule.java file.	To begin Concept Location
5	We started looking for parameters that take range as input using the eclipse IDE search tool.	
6	In RotateParameterBuilder.java we found a method that takes in range as input in a class called Rotate Parameter Builder.	This method is responsible for accepting the range parameter for rotating.
7	We inspected the method in depth	

8	We ran the debugger tool in eclipse	To check the workflow, with breakpoints inserted.
9	Upon Debugging we found that this particular method in the class RotateParameterBuilder is the location where the change must be made.	We confirmed and marked this class.

Time spent (in minutes): 150

4 Impact Analysis

Step #	Description	Rationale
1	The change is made in the method addinput in the class RotateParameterBuilder.	The function/method responsible for taking range as input and checking the option selected ie, even or odd.
2	This method is used in the class RotateParameterBuilder.	
3	This method is only used in the class RotateParameterBuilder. This method is not used anywhere outside of the class. The Class RotateParameterBuilder extends to an abstract class, and implements parameters from MultipleOutputTaskParametersBuilder.	None of the extended or inherited class use the addinput method.
4	There is no impact by this change.	

Time spent (in minutes): 60

5 Actualization

Step #	Description	Rationale
1	Through concept location we found only one method within the class RotateParametersBuilder need to modified to implement the change request #ps3	
2	The addInput method within the class RotateParametersBuilder needs modification.	This Method has two conditions within itself, if the range space is empty then check the option that is selected by the user in predefinedRotationType. else if the range is mentioned, check the range and rotate all pages within the range.

3	We had to make changes in the else statement of the addInput method so that it considers the predefinedRotationType along with the range.	By implementing this change we will be able to flip or rotate pages in an even or odd manner within the specified range
4	Three cases of if were added within the preexisting else statement.	One case for each PreDefinedRotation type ie, EVEN, ODD, or ALL_PAGES

Time spent (in minutes): 45

6 Validation

Step #	Description	Rationale
1	Manual Testing: -Build and Run TEST CASE 1: Inputs: 1-10, EVEN, 90 degree clock. Expected Output: 2,4,6,8 pages rotated 90 degree clock.	The test case passed.
2	Manual Testing: -Build and Run TEST CASE 2: Inputs: 5-17,18-21,ODD,180 degree clock Expected Output: 5,7,9,11,13,15,17,19,21 pages rotated 180 clock.	The test case passed.
3	Manual Testing: -Build and Run TEST CASE 3: Inputs: 1-10, ALL_PAGES, 90 degree clock Expected Output: all pages in the range 1-10 rotated 90 degree clock.	Threw an exception. This is because we had not defined a condition for ALL_PAGES. We later modified the condition and then The test case passed.
4	Manual Testing: -Build and Run TEST CASE 4: Inputs: 1-10,5-12,EVEN, 90 degree clock Expected Output: 2,4,6,8,10,12 rotated 90 degree clock.	Test case passed. This test case gave a hint on how to solve the change request #ps2(INTERSECTION).

Time spent (in minutes): 30

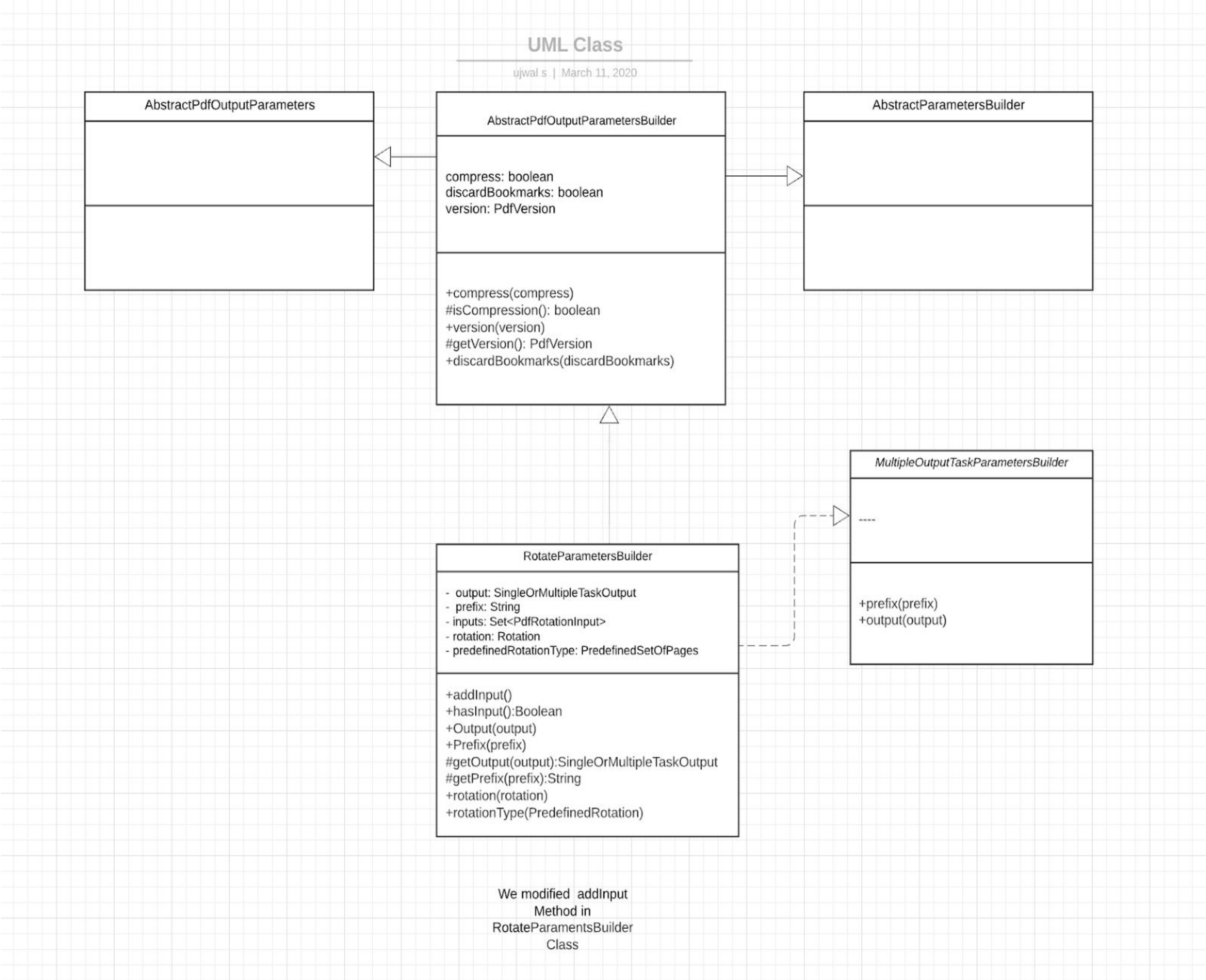
7 Timing

Summarize the time spent on each phase.

Phase Name	Time (in minutes)
Concept location	150

Impact Analysis	60
Prefactoring	-
Actualization	45
Postfactoring	120
Verification	30
Total	405

8 Reverse engineering


UML Class
ujwal s | March 11, 2020
AbstractPdfOutputParameters
AbstractPdfOutputParametersBuilder
compress: boolean
discardBookmarks: boolean
version: PdfVersion
+compress(compress)
#isCompression(): boolean
+version(version)
#getVersion(): PdfVersion
+discardBookmarks(discardBookmarks)
AbstractParametersBuilder
MultipleOutputTaskParametersBuilder

+prefix(prefix)
+output(output)
RotateParametersBuilder
- output: SingleOrMultipleTaskOutput
- prefix: String
- inputs: Set<PdfRotationInput>
- rotation: Rotation
- predefinedRotationType: PredefinedSetOfPages
+addInput()
+hasInput():Boolean
+Output(output)
+Prefix(prefix)
#getOutput(output):SingleOrMultipleTaskOutput
#getPrefix(prefix):String
+rotation(rotation)
+rotationType(PredefinedRotation)

We modified addInput Method in RotateParamentsBuilder Class

9 Conclusions

- For this change, the concept location was challenging. The debugger tool and the search tool in Eclipse IDE was very useful. Impact analysis was to determine as this change did not have any impact on other modules.
- Testing was done by various unique combinations of inputs and the change passed all cases.
- The only thing changed was the data structure used ie, the set to an arraylist.
- Fortunately the overlapping of ranges did not cause any effect on the packages.
- class and method change:
    - The addInput Method in the class RotateParameterBuilder-
    - File location- pdfsam-rotate/src/main/java/org.pdfsam.rotate/RotateParametersBuilder.java