Fill

The program loads an xml file to use as input, the information in this xml file is used to populate the pageInput class with formatting information and a list of strings, which is checked against the Validator. This formatting includes the: format, wrap, softWrap and columnMoment. If any of these are missing, an exception is thrown.

The Validator checks that the strings consist of only lower case letters, contain more than one vowel, (or more than two if the string length is more than 3), and that these vowels appear in alphabetical order. The valid strings are known as words.

A method is then called to create a page. The format is checked in a switch statement which gives different instructions for each format. An object is created to hold the lines, passing the wrap as a parameter. The wrap is assigned to an internal variable, which is used later to format lines. A new list is then created to hold the input strings, and another method is called to add a line so the list isn't empty.

This method takes an internal object which holds the current line, and creates a new word-holding object to populate it, with the line-holding object as a parameter. The constructor inherits the Line constructor, and gets the current line from the line-holding object. This Line object is added to content as a new line.

Next, the blank page object is populated using and polymorphic add method, with the list of strings as a parameter. (If the fillSet flag is true, it will be handled here). The method will cycle through all the words in the list and polymorphically call an add method for each of them. This will check if the wrap limit is breached using an abstracted method. If there is space, it continues to the next word; if the word is longer than the wrap, it adds a line, then adds the word directly to the line; If the word isn't bigger than the wrap, and there isn't space, it adds a line and then calls the add method again. Once all the words are added, the page is returned.

The page is formatted using a StringBuilder, which removes the space at the end of each line, and appends return character to each line. The output is given to a StreamWriter which uses a ToString override to convert the lines to strings, writes these strings to a text file, and returns it.

FillSoft

A page is created with fill format, the bottom half is added to a list, and used to make a page using the softwrap. If the final page has the same amount of lines as the original, the two pages are then combined and returned.

FillSet

A flag that changes the add method is made true. The words are sorted by size. Then the biggest word that fits is added to the line, and removed from the list, until there are no words left.