The provided code is for a sentiment analysis algorithm specifically designed for use in financial texts. The algorithm consists of several steps, including cleaning the text using a list of stop words, creating a dictionary of positive and negative words, and extracting various derived variables such as the positive and negative scores, polarity score, and subjectivity score.

The first step in the algorithm is to clean the text using a list of stop words. This is done by removing any words found in the stop words list from the text. The stop words list used in this algorithm can be found in the "StopWords" folder.

The next step is to create a dictionary of positive and negative words. This is done by using the "MasterDictionary" found in the folder "MasterDictionary". Only those words that are not found in the stop words list are added to the dictionary.

Once the text is cleaned and the dictionary of positive and negative words is created, the algorithm then proceeds to extract various derived variables. These include the positive score, negative score, polarity score, and subjectivity score. The positive score is calculated by assigning a value of +1 to each word found in the positive dictionary and then adding up all the values. The negative score is calculated by assigning a value of -1 to each word found in the negative dictionary and then adding up all the values. The polarity score is then calculated by using the formula: Polarity Score = (Positive Score – Negative Score)/ ((Positive Score + Negative Score) + 0.000001). The range of the polarity score is from -1 to +1. The subjectivity score is calculated by using the formula: Subjectivity Score = (Positive Score + Negative Score)/ ((Total Words after cleaning) + 0.000001). The range of the subjectivity score is from 0 to +1.

In addition to these steps, the code also includes analysis of readability, average number of words per sentence, complex word count, word count, syllable count per word, personal pronouns, and average word length. The readability is calculated using the Gunning Fox index formula, the average number of words per sentence is calculated by dividing the total number of words by the total number of sentences, and the complex word count is calculated by counting the number of words in the text that contain more than two syllables.

The word count is done by removing stop words and any punctuations from the text before counting. The syllable count per word is calculated by counting the number of vowels in each word and handling exceptions for words ending with "es" and "ed". The personal pronouns are calculated by using regular expressions to find the counts of the words "I," "we," "my," "ours," and "us." The average word length is calculated by summing up the total number of characters in each word and dividing by the total number of words.

Overall, the provided code is a comprehensive sentiment analysis algorithm for financial texts that includes various steps such as cleaning the text, creating a dictionary of positive and negative words, and extracting various derived variables to determine the sentiment of the text. It also includes additional analysis such as readability, average number of words per sentence, complex word count, word count, syllable count per word, personal pronouns and average word length, which can provide additional insights into the text.