

ALGORITHM OF THE SOLUTION

- 1) To get the messages which are 3 different options for user until the user choose the 3, we should use **while loop**. Until **choice == 3**, the user can enter the choice continuously.
- 2) should use **if statement** to give an error message when **user does not choose 1 or 2**. However, we should keep asking to enter the choice because choice is not still 3, so user should not quit.
- 3) If user enter **1 to choice**, we should ask a question to **enter word**, to do this we should use **scanner**. However, **if the length of the Word is less than 2**, we should **keep asking to enter a Word** and also before do that we should give an **error message for invalid length**. To keep asking we should use **while loop**, **until length is equal to 2 or more than 2**, we should keep asking.
- 4) The **number of the digit** which are added to the string(encoded_word) should be **equal to the length of the string**. I used to * to represent the digit that I will add to the string. (Hence, length of the new string is twice as old one) (example: **xx**** is new string temporarily.)
- 5) To split the string with space firstly we should choose the index of space in a random way, and to create new string (with the added space) we can use the **substring**. Moreover, if the index of space equals zero or string length, we should indicate again the index of space because we want to separate the string into two parts.
- 6) The part that adding digits to the string, we should add as much as length of the user's input so to do this we can use **while loop**.
The digit and index of digit should be indicated randomly. If index of digit equals to the index of space we should indicate index again. Moreover, we should be careful about the previous index of digit, these should not be equal to each other, so we should indicate again. We can do these arrangement with **if else statements**.
Lastly, we can add the digits by using **substring**.
- 7) Finally, we should get rid of "*" char, we used this for placement of digit but right now we added digit to string so we do not need them.
- 8) An error message should be given if the user passes 2. Option without choosing the 1. Option, because there is not any Word to decoded.
If first choose 1. Option and then choose 2. Option, we should convert encoded Word to decoded version with **while loop** by **checking character is letter or not**, if character is letter we should add these characters to new string and print those.
- 9) If choice equals to the 3, we should give a message and we should get out of the loop.