Brain Crammer 2.0

(program for learning facts)

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Executive Summary

Business

This program was not developed for a specific business but instead for anyone of any profession that needs to memorize facts. I am currently a student at Brigham Young University. During the course of my studies and while completing internships I have found it necessary to memorize many facts and random items of knowledge. This program is intended for students and professionals in any area of business that need to memorize facts in a quick and effective method. This program could also be used by someone preparing to enter a trivia contest because it is able to generate random questions from Wikipedia articles.

Program

This program has two major functions:

Function 1: quizzing based on study notes. This program allows students to take notes in Microsoft excel and then quiz themselves on the definition. Studies have shown that rote memorization is highly ineffective and results in almost immediate loss of knowledge. The method implemented by this program involves typing the complete name of a given definition which is much more effective in retaining the information.

Function 2: random fact quizzing. Even more impressive, is the capability of this program to generate quiz questions on random facts pulled from Wikipedia.org. This is an enjoyable way of broadening one's knowledge base and practicing memorization techniques.

Overview of System

The program utilizes the following concepts:

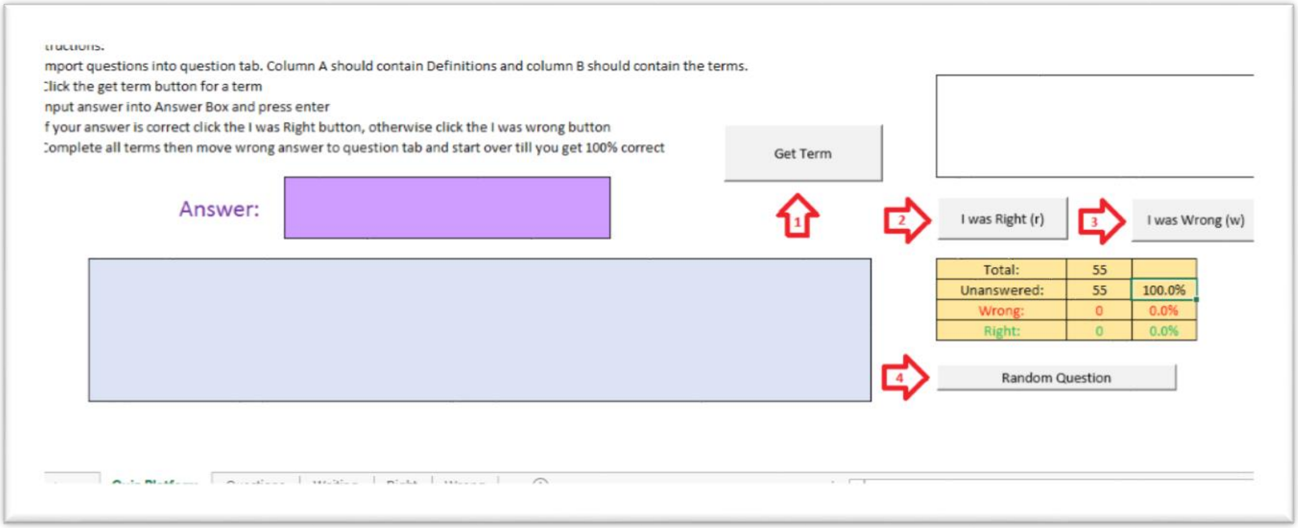
- Ribbon Customization
- Custom Userforms
- Data import from the internet
- Web query and HTML conversion
- Webpage manipulation
- Custom functions
- Working with defined ranges and objects
- Manipulating dynamic arrays
- Complex vba functions such as ubound, split, and mid
- Parsing of complex web pages
- Loops and nested loops

Basis for the Project

This project was inspired by the website quizlet.com which creates virtual flashcards based on study notes. Further inspiration came after watching the TV show *Who Wants to be a Millionaire* and wondering how contestants would prepare for questioning among various topics. If you have ever considered competing in a trivia gameshow then this program is for you.

Implementation

The following figure shows the main tab of the worksheet:



tructions:
mport questions into question tab. Column A should contain Definitions and column B should contain the terms.
:lick the get term button for a term
nput answer into Answer Box and press enter
f your answer is correct click the I was Right button, otherwise click the I was wrong button
:omplete all terms then move wrong answer to question tab and start over till you get 100% correct

Answer:

Total:	55	
Unanswered:	55	100.0%
Wrong:	0	0.0%
Right:	0	0.0%

The numbered red arrows correspond to different functionalities and are explained below.

1. **Get Term Button**
    a. This button selects a random row from the questions tab and places the definition in the light blue box.
    b. If there are no terms in the questions tab then it will do nothing.
    c. It deletes the row containing the random term and definition and places it in the waiting tab. This is to prevent loss of data should the user close the program without completing the question.
2. **I was Right Button**
    d. When the user types in the correct answer and presses enter the white box will signal either a correct response or an incorrect response. If the user was correct then they should click this box.
    e. This method was chosen because if the program automatically determined if the user input the correct answer then many answers that are acceptable would be rejected. This allows the user to signify whether they were correct or not and if the mistake is minor and not worthy of a rejection the question is not added to the "Wrong" tab.
    f. This button takes the term from the waiting tab and uses cut and paste to move it to the "Right" tab.
3. **I was Wrong Button**
    g. Similar to the "I was Right button" This button moves the item from the "Waiting" tab of the spreadsheet to the "Wrong" tab.

h. The purpose of this is to separate terms that are known from those that need to be re-practiced. After completion of all terms, the user can then move the terms from the “Wrong” tab to the “Questions” tab.

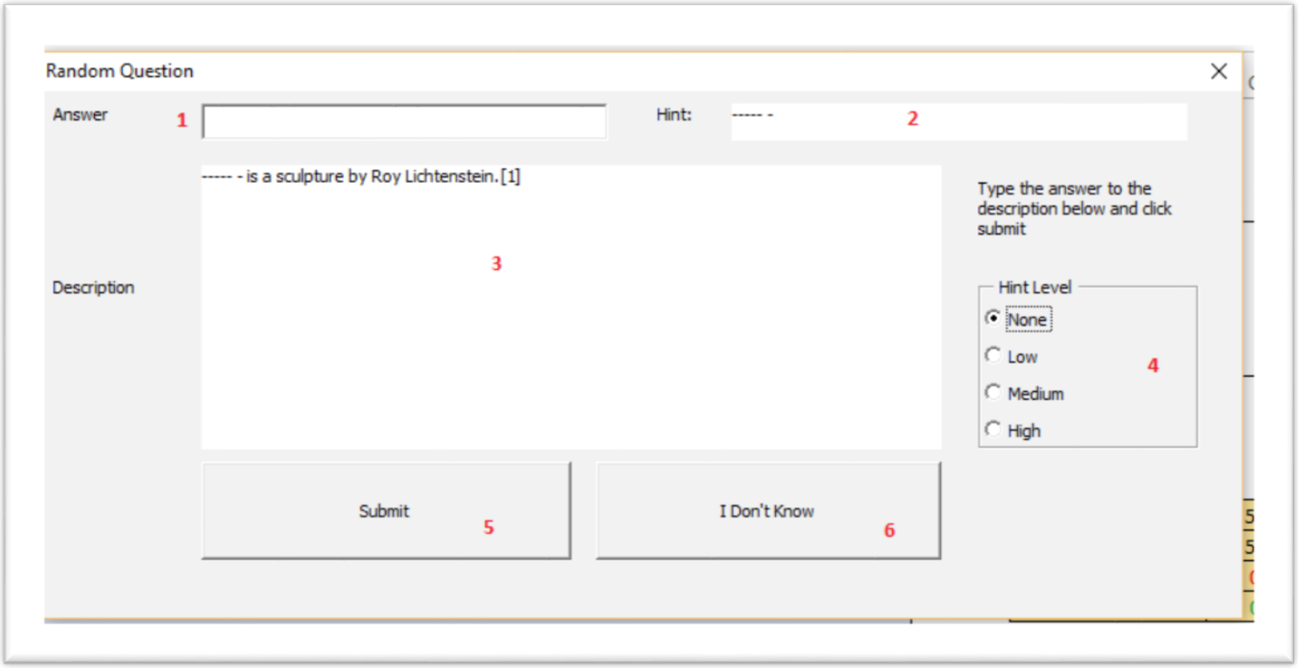
4. **Random Question Button** (Please see the following figure and corresponding numbers for explanation

   i. Generates a userform with information from a random Wikipedia webpage

   j. Generates an answer from the title of the webpage

   k. Generates a description from the first paragraph of the webpage

   l. Encodes the answer as a hint with corresponding hyphens and spaces



Hint: ----- -

----- - is a sculpture by Roy Lichtenstein.[1]

Type the answer to the description below and click submit

Hint Level: ● None

5. **Answer Text Box**

   a. This allows the user to input their answer to the given description

6. **Hint Label**

   a. This field will automatically populate with a hint to the answer.

   b. The hint is represented with hyphens signifying characters and spaces in appropriate places.

   c. By splitting the variable containing the answer into a dynamic array this program is able to accurately represent the number and size of words in the answer

   d. This hint can be changed with the option buttons in the Hint Level frame

7. **Description Label**

   a. This field automatically populates with the first paragraph of the randomly selected webpage

   b. The HTML language imported from the webpage is decoded

   c. All instances of the answer are replaced with hyphens just like the hint

8. **Hint Level Frame**

a. This allows the user to adjust the hint, making it easier for the user

b. Selecting the low option button will reveal the first 20% of the answer in the hint box

c. Selecting the medium option button will reveal the first 50% of the answer in the hint box

d. Selecting the high option button will reveal the first 80% of the answer in the hint box

e. Selecting none will return the hint to hyphens and spaces

9. **Submit Button**

a. This will compare the users input in the answer box with the correct answer. If the user is correct they will be notified with a msgbox

b. If the user is incorrect they will be notified and informed of the correct answer with a msgbox

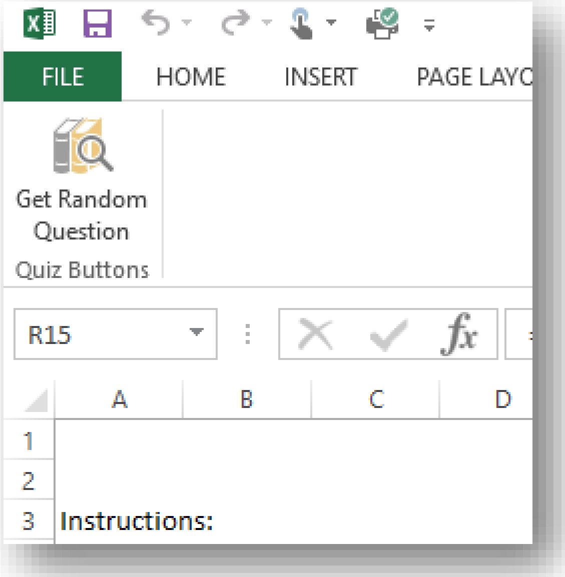
c. This unloads the information in the userform and returns the user to the Excel file

10. **I don't Know Question Box**

a. This notifies the user of the correct answer and unloads all data

Additional Note:

This excel file also includes a customized ribbon. Under the quiz button tab there is an option for "Get Random Question." This can be seen in the figure to the right. This will complete the same action as the Random Question Button and generates a random question userform.



Discussion of Learning

This project was a wonderful learning experience. I solidified the things that I learned all semester in one large project. The most difficult aspect of this for me was dealing with random and obnoxious errors. There were many times where I didn't understand why my program wasn't working and bringing in the correct information and I learned much from debugging.

I thoroughly enjoyed parsing through the webpage html and generating questions based on random Wikipedia articles. It was really fun and I spent a lot of time just playing with the random question button and trying to answer any of the questions which are really hard and basically impossible without the help of the hint.

An example of when I augmented my learning was when I needed to come up with the hint function. It was basically impossible to answer a random question without some type of hint so I had to figure out a way to help without giving it all away. Eventually I remembered the split function and used it to separate the terms into a dynamic array. Then I customized a nested do loop where the inner loop took the first word in the array and converted it to hyphens. The outer loop added the hyphen string to the hint string and separated the strings with spaces. When it all worked I was very proud of myself.

Overall I learned how to overcome problems with my code through trial and error as well as searching the internet for solutions. It was really fun relying on the skills that I obtained from class and building upon them.

Assistance

I received no assistance other than what I read from the internet. I enjoyed relying on my own knowledge and felt that it augmented my learning. I probably could have completed the project sooner if I had asked for help, as it was this project took me about 20 hours to complete and I feel it would have taken the average student even longer.