BRAIN HACKERS APP DEVELOPMENT CURRICULUM

Section 3

Mad Libs – User Input and Text Boxes

SUMMARY

This lesson introduces apps with which a user provides input and the app responds in different ways depending on the user input. For this app, emphasize will be on Text Boxes as the basis for user input, with students creating a version of the game Mad Libs. This exercise demonstrates the practice of finding funny things to do with important information to help remember it.

ASSUMPTIONS

It is assumed that students will be able to use a text book or Internet sources to find a paragraph of text they can use to create their Mad Libs app.

Key Concepts
User Input - any action taken by a user that an app must detect and make a response, with the "*user interface*" being the mechanism by which a user interacts with an app

TEXT FOR MAD LIBS DEMONSTRATION

The following text was taken from a 7th grade Life Sciences text book and is used for the demonstration – NOTE: underlined words will be replaced with words supplied by the user.

> *"All living things take materials from their surroundings such as <u>food</u>, <u>water</u>, and <u>gases</u>. They use these materials to get <u>energy</u>, which is needed for their life functions."*

DESIGNER Workspace

- Insert a Label – NOTE: this label will be the first in a series that instruct the user to provide input to the app
    - Check the FontBold checkbox
    - Change the FontSize to "18"
    - Replace the Label text with, "Enter a food"
- From the User Interface components, insert a TextBox below the first Label – NOTE: the user will type their input into the TextBox
    - Delete the text for a Hint – NOTE: for some apps, a hint can be useful, but since this app provides clear instructions for what should be entered, hints are not necessary and it is better to have the TextBox begin blank
- Insert a second Label
    - Replace the text with, "Enter a drink"
- Insert a second TextBox
- Insert a third Label
    - Replace the text with, "Enter a gaseous substance"
- Insert a third TextBox
- Insert a fourth Label
    - Replace the text with, "Enter a feeling or state of mind"
- Insert a fourth Text Box
- Insert a Label without text to serve as a spacer
- Insert a Button
    - Change the text on the Button to, "Mad Libs"
- Insert a second Button
    - Change the text on the Button to, "Clear"
- Insert eight Text-to-Speech blocks – NOTE: for this app, a separate Text-to-Speech component will be used for each chunk of spoken text

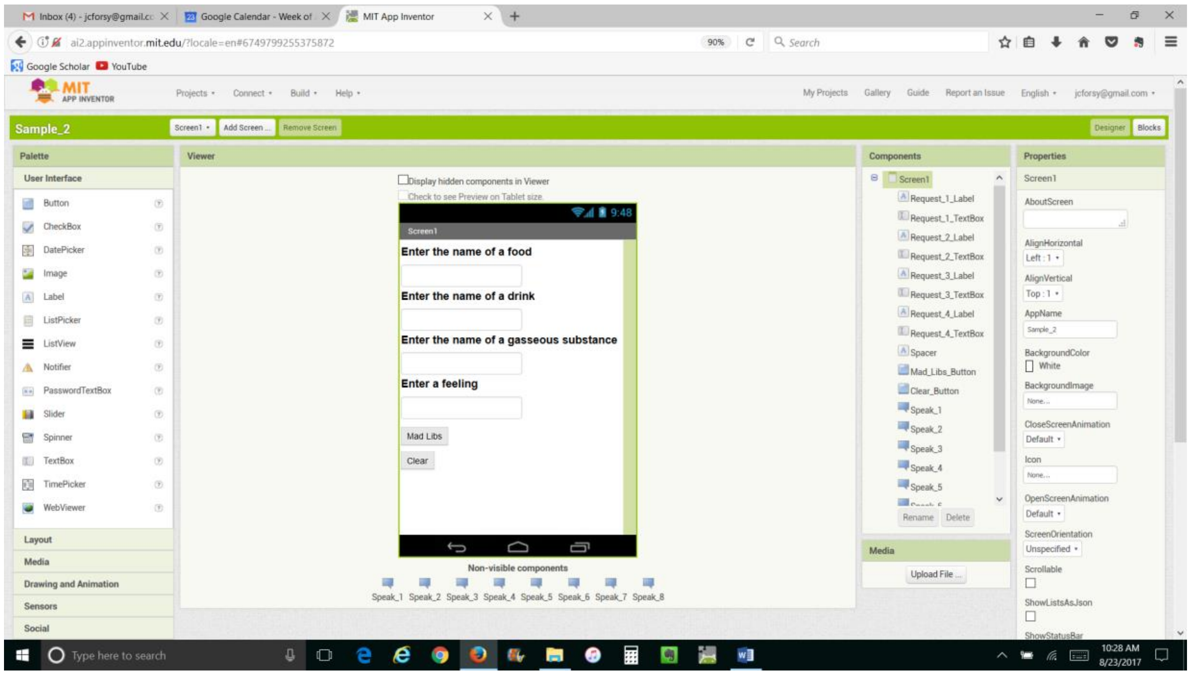


FIGURE 1. This image shows how the Designer workspace should appear

BLOCKS WORKSPACE

In this program we will insert several blocks into a single Event Handler. When the program runs, each block will be executed in sequential order. This is referred to as a Control Flow, in that the order the instructions are executed is based on the order they appear.

Key Concepts

Control Flow – the order in which a series of instructions are executed within a program

- For the Mad Libs Button, insert a ***when ___ .Click do*** block
  - Insert a ***call ___ .Speak*** block for the first Text-to-Speech
    - Attach a text string block to the message slot with the text, "All living things take materials from their surroundings such as"
  - Insert a ***call ___ .Speak*** block for the second Text-to-Speech
    - From the blocks for the first TextBox, attach a ***___.Text*** block for the first TextBox to the message slot – NOTE: this block is a "Pointer" directs Text-to-Speech to use the user entry in the TextBox as its input

Key Concepts
Pointer – a feature that directs the program to where to find a value

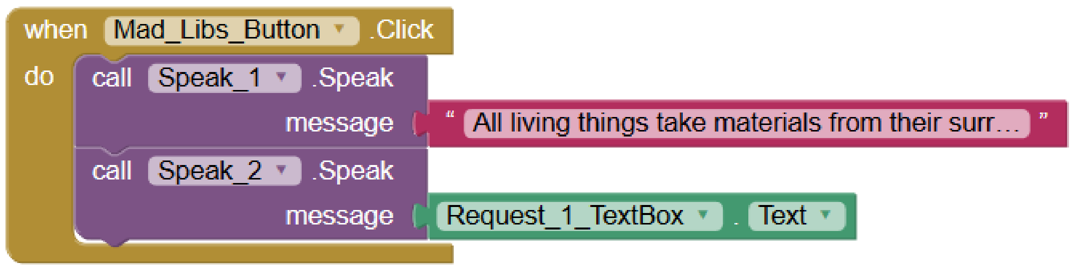
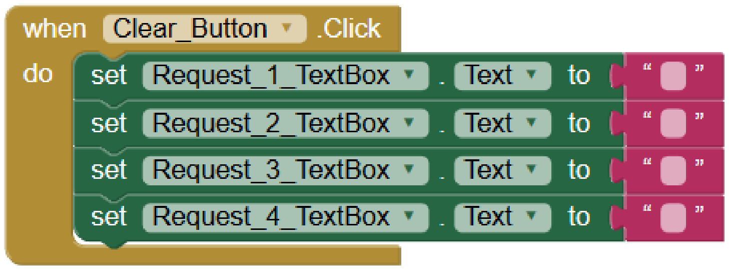

when Mad_Libs_Button .Click
do call Speak_1 .Speak
message " All living things take materials from their surr... "
call Speak_2 .Speak
message Request_1_TextBox . Text

FIGURE 2. This image shows the ***when*** **___ *.Click do*** block with the first two ***call*** **___ *.Speak*** blocks

- Insert a ***call*** ___ ***.Speak*** block for the third Text-to-Speech
  - Attach a ___***.Text*** block for the second TextBox
- Insert a ***call*** ___ ***.Speak*** block for the fourth Text-to-Speech
  - Attach a text string with, "and"
- Insert a ***call*** ___ ***.Speak*** block for the fifth Text-to-Speech
  - Attach a ___***.Text*** block for the third TextBox
- Insert a ***call*** ___ ***.Speak*** block for the sixth Text-to-Speech
  - Attach a text string with, "They use these materials to get"
- Insert a ***call*** ___ ***.Speak*** block for the seventh Text-to-Speech
  - Attach a ___***.Text*** block for the fourth TextBox
- Insert a ***call*** ___ ***.Speak*** block for the eight Text-to-Speech
  - Attach a text string with, "which is needed for their life functions"

- Insert a ***when*** ___ ***.Click do*** block for the Clear Button – NOTE: this block will clear the text from the text boxes so a user can play a second round
  - From the blocks for the first TextBox, insert a ***set*** ___ ***.Text*** block – NOTE: this block changes the text that appears in the text box
    - Attach a text string without any text
  - Repeat the above step for each TextBox



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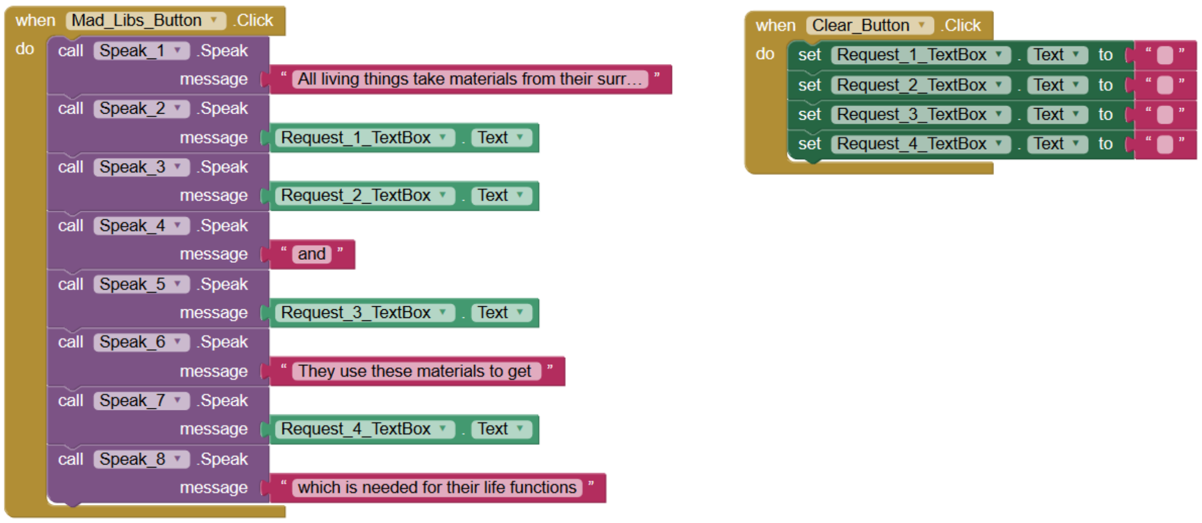
when Clear_Button .Click
do  set Request_1_TextBox . Text to " "
    set Request_2_TextBox . Text to " "
    set Request_3_TextBox . Text to " "
    set Request_4_TextBox . Text to " "
```

FIGURE 3. This image shows the ***when* ___ *.Click do*** block for the Clear Button with the ***set* ___ *.Text*** for each TextBox



```
when Mad_Libs_Button .Click
do  call Speak_1 .Speak
             message " All living things take materials from their surr… "
    call Speak_2 .Speak
             message Request_1_TextBox . Text
    call Speak_3 .Speak
             message Request_2_TextBox . Text
    call Speak_4 .Speak
             message " and "
    call Speak_5 .Speak
             message Request_3_TextBox . Text
    call Speak_6 .Speak
             message " They use these materials to get "
    call Speak_7 .Speak
             message Request_4_TextBox . Text
    call Speak_8 .Speak
             message " which is needed for their life functions "

when Clear_Button .Click
do  set Request_1_TextBox . Text to " "
    set Request_2_TextBox . Text to " "
    set Request_3_TextBox . Text to " "
    set Request_4_TextBox . Text to " "
```

FIGURE 4. This image shows how the Blocks workspace should appear

ACTIVITY

Find text related to an assigned topic and construct your own Mad Libs app. Try to imagine what users might enter and design the app so that the wording makes sense, but has potential to be funny. Be sure to share your app with others.