Task Sheets from Module C: App Development

#	Handout	#	Task sheet
C1	Introduction to MIT App Inventor 2	**C1.1**	Show and hide an image
		C1.2	Talk to me
		C1.3	Random Colour Generator

Module: App development

Topic: Introduction to MIT App Inventor 2

Task sheet C1.1: Show and hide an image

Time: 2:00 hour(s)

General description:

When building mobile apps, you will use different components that have different methods, events and properties. While some of the components can then be visible to the final user (e.g. buttons, text and images), other components are invisible (e.g. accelerometer and orientation sensor). In this task, participants will code a simple app that will use visible components, namely a button, which will make an image appear and disappear.

Learning objective(s):

- Make a basic app using visible components (buttons and images);
- Compile and test an app in a mobile phone / android emulator.

Material required:

- A laptop with access to internet;
- A smartphone with MIT App Inventor 2.

Description of the activity:

1. Start a new project and give the project a name;
2. Insert two buttons and an image. Optional: once you insert the image component, you can upload a picture.
3. Rename the buttons (e.g. show and hide).
4. Insert the necessary blocks and proceed to the creation of the app by ordering them logically.
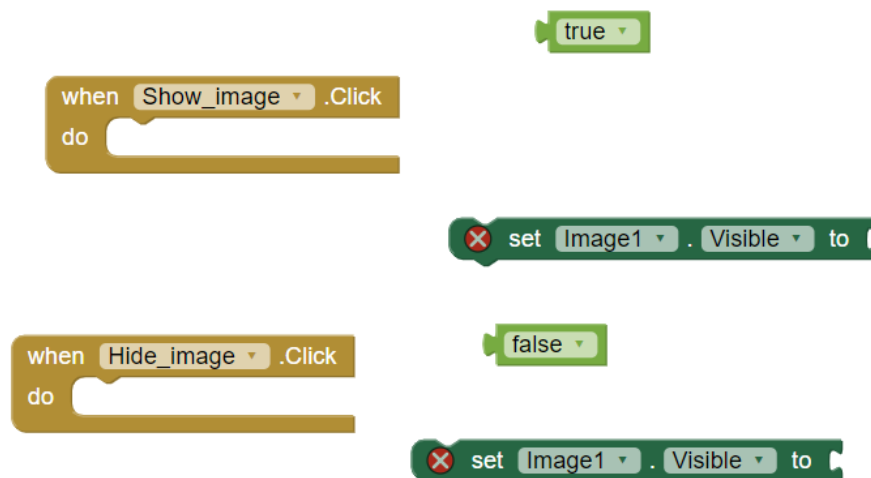
5. Now it is time to test the app. Go to the menu "connect" and select "AI Companion" to generate a QR code and a password. Launch the MIT App inventor in your smartphone and click on "scan QR code". Scan the QR code or inset the password to instantly see the app built in your smartphone. Click in the button and see if it works.

How to adapt to different learners:

● If blocks are not intuitive, explain participants what each one does. Challenge them logical thinking before telling them the solutions. Alternatively, ask them to explore online sources and see if they can come up with the solutions.
● Participants who have more knowledge can be challenged to make other apps using more buttons and images (e.g. add 3 buttons and 3 images: button 1 will hide and show images 1 and 2; button 2 will hide and show images 2 and 3; button 3 will hide and show all 3 images)

Additional information:
Tutorials of basic apps that use buttons and images components:

Button click & Components' Visibility:

● https://www.youtube.com/watch?v=tcHoHhOlDZg

Animated Push Button:

● https://www.youtube.com/watch?v=7oPHFlmUAm8

Not sure what kind of app to create? You can draw some ideas and inspirations from
https://appinventor.mit.edu/explore/ai2/tutorials.html

Module: App development

Topic: Introduction to MIT App Inventor 2

Task sheet C1.2: Talk to me

Time: 1:00 hour(s)

General description:

When building mobile apps, you will use different components that have different methods, events and properties. While some of the components can then be visible to the final user (e.g. buttons, text and images), other components are invisible (e.g. accelerometer and orientation sensor). In this task, participants will use visible and invisible components, namely a button that when clicked will trigger a voice with a pre-defined sentence.

Learning objective(s):

- Make a basic app using visible (buttons) and invisible components (speech function).
- Understand the concept of events and triggers on a higher level.
- Compile and test an app in a mobile phone / android emulator.

Material required:

- A laptop with access to internet;
- A smartphone with MIT App Inventor 2.

Description of the activity:

1. Start a new project and give the project a name;
2. Insert a button;
3. Rename the text in the button (e.g. "talk to me");
4. Go to "media" and insert the non-visible component "*TextToSpeech*";
5. Insert the necessary blocks and proceed to the creation of the app by ordering them logically. Define the text that will be said when you click the button (e.g. "Congratulations. You've made your first app");

6. Now it is time to test the app. Go to the menu "connect" and select "AI Companion" to generate a QR code and a password. Launch the MIT App inventor in your smartphone and click on "scan QR code". Scan the QR code or insert the password to instantly see the app built in your smartphone. Click on the button and see if it works.

How to adapt to different learners:
- If blocks are not intuitive, explain to participants what each one does. Challenge them with logical thinking before telling them the solutions. Alternatively, ask them to explore online sources and see if they can come up with the solutions.
- Participants who have more knowledge can be challenged to insert an accelerometer component and code it so that, instead of clicking on a button, a sentence is voiced when the smartphone is shaking.

Additional information:

Tutorials of basic apps that use *TextToSpeech* component

Speech recogniser to text speech app
- https://www.youtube.com/watch?v=7lheZvVsEqQ
- https://www.youtube.com/watch?v=hSLNx6-mYKY

Accelerometer recogniser to text speech:
- https://www.youtube.com/watch?v=WyE_auoeJkk

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Module: App Development

Topic: Introduction to MIT App Inventor 2
Task sheet C1.3: Random Colour Generator

Time: 2:00 hour(s)

General description:

When creating mobile applications, you will use different components with different methods, events and properties. In this task, participants will learn how to create an automatic colour selection system, mixing blue, red and green colours randomly.

Learning objective(s):

● Make a basic app that use a random choice system
● Understand how to create a random choice system
● Compile and test an application in a mobile phone.

Material required:

● A laptop with access to internet;
● A smartphone with MIT App Inventor 2.

Description of the activity:

1. Start a new project and give the project a name;
2. Insert a button and text labels;
3. Rename the text in the button (e.g. Chance colour) and label (e.g. RGB) at your will;
4. Go to "drawing and animation" and insert the Canvas;
5. Configure the height and width in the canvas' properties;
6. Insert the necessary blocks and proceed to the creation of the app by ordering them logically;
7. Now it is time to test the app. Go to the menu "connect" and select "AI Companion'' to generate a QR code and a password. Launch the MIT App inventor in your smartphone and click on "scan QR code". Scan the QR code or insert the password to instantly see the app built in your smartphone. Click on the button and see if it works.
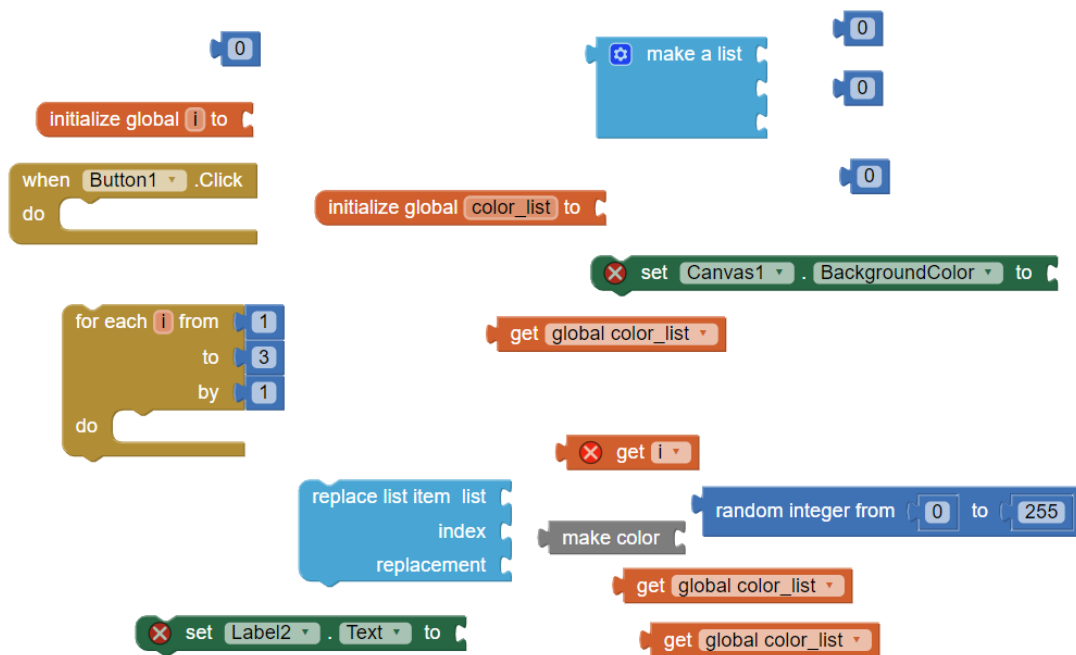
How to adapt to different learners:
- If blocks are not intuitive, explain to participants what each one does. Challenge them with logical thinking before telling them the solutions. Alternatively, ask them to explore online sources and see if they can come up with the solutions.
- Participants who have more knowledge can be challenged to make other apps using the Canvas component. For instance, create buttons that when clicked will change the colour of the canvas.

Additional information:

Tutorials of basic apps that use the Canvas component:
Drawing, saving and loading a canvas:
- https://www.youtube.com/watch?v=mwXidmTDAfs

Drawing an arc on canvas:
- https://www.youtube.com/watch?v=p7qsi5Wh1qg

Random colour generator:
- https://www.youtube.com/watch?v=tX_Trisqbgw

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