Scratch Hands-on Assignments
CS4HS - Summer 2017

Assignment 1 :

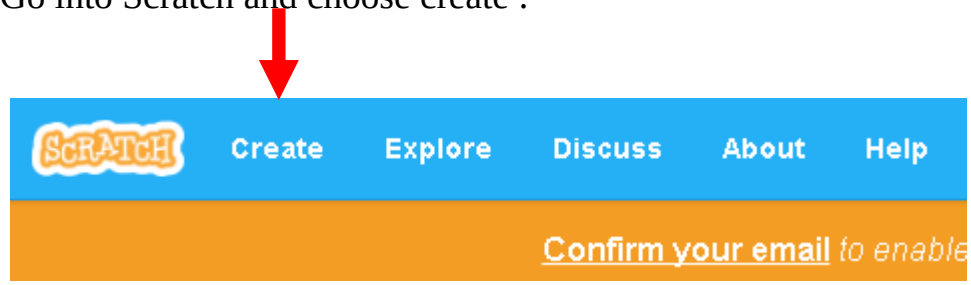
1. Obtain and open the Scratch project called **name.sb :**

   a. Go to the link : https://tinyurl.com/CS4HSSCRATCH

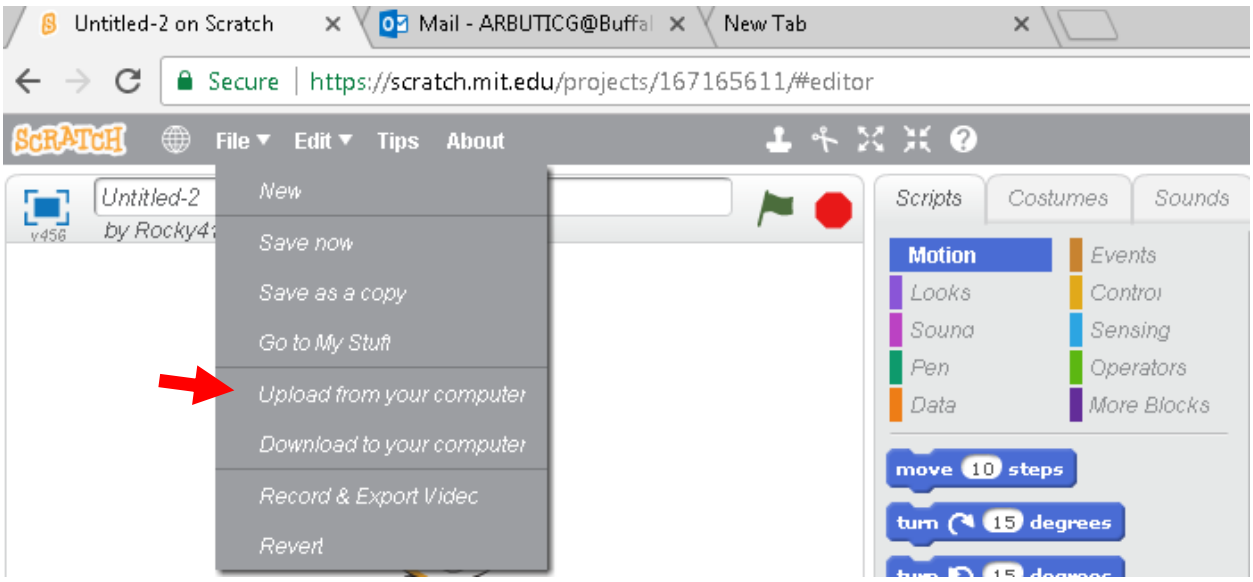
   b. Click on the folder named **ECS Scratch Files**

   c. Download **name.sb**

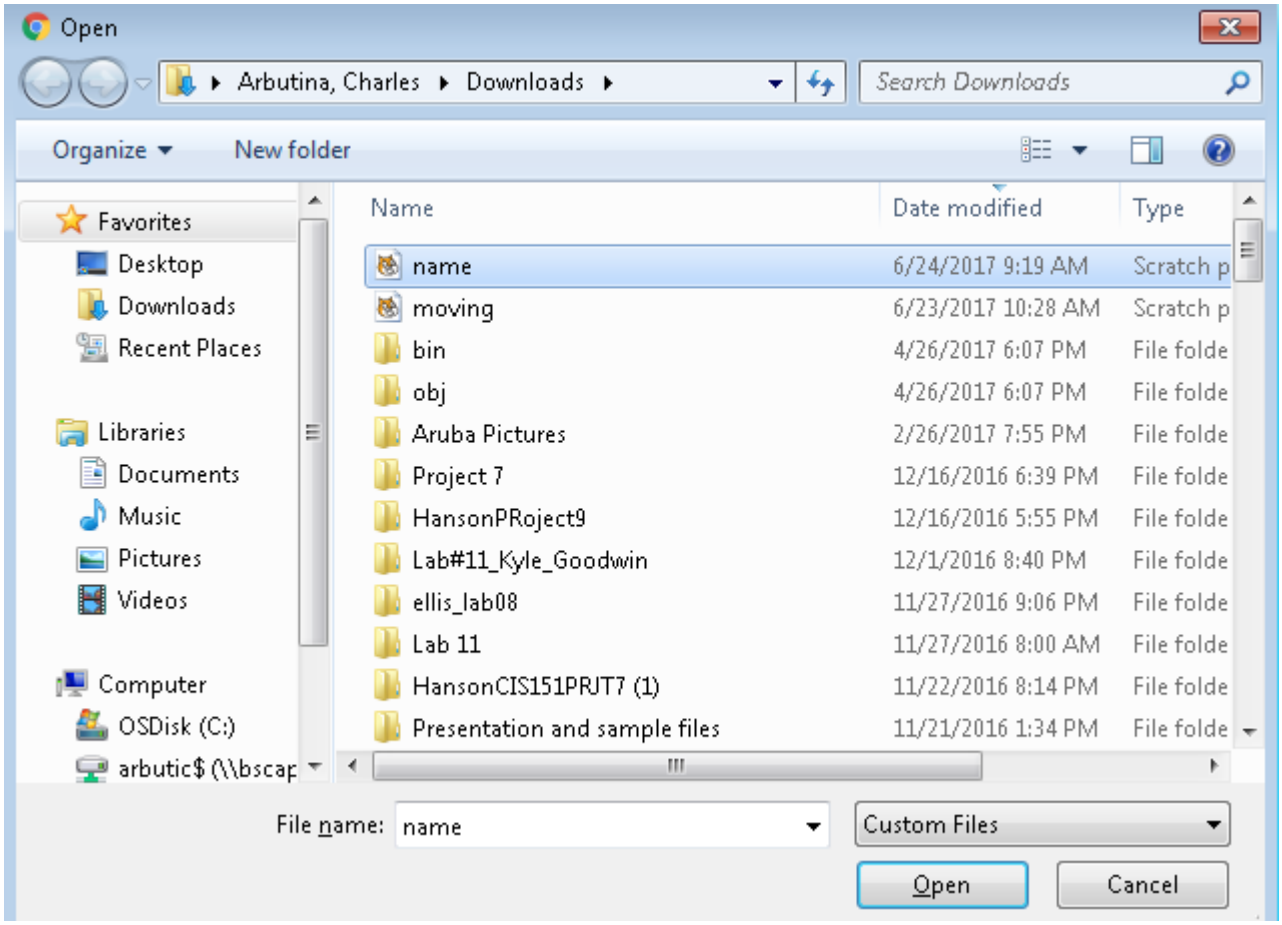
   d. Go into Scratch and choose create :



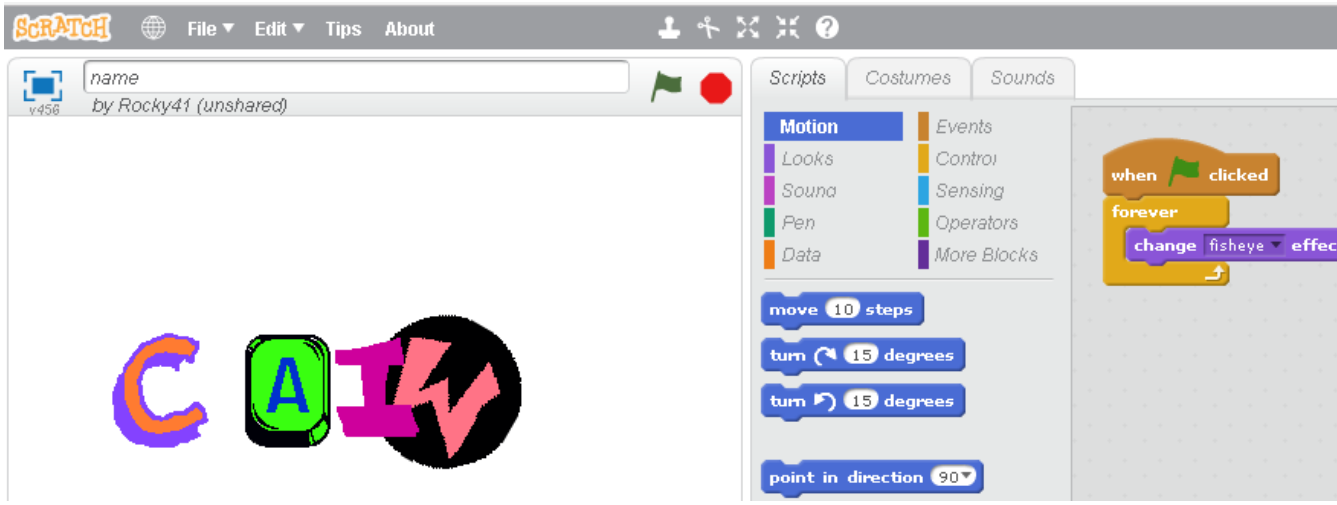
2. Choose File and upload from your computer :



3. Enter the name of the downloaded file and click open:



4. The **name.sb** will open :



5. Experiment and explore this project to determine what blocks do.

6. Create a storyboard for a “name” that includes at least 3 “letters” from team member’s combined names. Address requirements of the following rubric:

Do you have?	Points Possible
Have a separate sprite for each letter of your name.	5
Have at least 3 different interesting behaviors for the letters in your name.	5
All the letters have a behavior	4
Use the “when green flag clicked” block	3
Use the “forever” block	3
Extension	
Have your name reinitialize itself when the green flag is clicked. In other words, all the letters will start off in the right location facing the correct way.	2
TOTAL:	20

Assignment 2 (Dialogues) :

Develop a project that contains a dialogue between two or more Scratch Sprites.

Be sure it addresses the requirements listed:

Do you have?	Points Possible
Have 2 or more sprites talking in dialogue.	4
Have 3 or more sprites talking in dialogue.	5
All the sprites are polite and they take turns talking	4
Each sprite says at least 3 things.	3
The conversation starts “when green flag clicked”	4
Extension	
Have 4 or more sprites talking in dialogue	2
TOTAL:	20

Assignment 3 (Events) :

Part A. (Use Project Editor to add sprites)

- Create a new project with two sprites : **Cat1** and **Cassy Dance**
- Right click on Cassy Dance and choose duplicate to make a copy
- Position the Cassy Dance sprites on each side of Cat1
- Add the backdrop spotlight stage (Music and Dance Theme)

Part B. (Develop scripts)

Make Cat1 dance :

- Click on Cat1 to open the Cat1 script area
- Use the say block **(**under **Looks)** to have cat say 'watch us dance' for 2 seconds
- Use the move block (under **Motion**) to have Cat1 move 10 steps
- Use the wait block (under **Control**) to have Cat1 wait 1 second
- Use the move block to have Cat1 move -10 steps
- Use the next costume block
- Use the repeat block (under **Control**) to repeat the previous 4 blocks 10 times
- Initiate the Cat1 script using the when  clicked block (under **Events**)

Make Cassy Dance dance :

- Click on Cassy Dance to open the Cassy Dance script area
- Use the switch costume to block **(**under **Looks)** to change costume to 'Cassy Dance a'
- Use the wait block (under **Control**) to have Cassy Dance wait 2 seconds
- Use the next costume block
- Use the wait block to have Cassy Dance wait .5 second
- Use the repeat block to repeat the previous 2 blocks 10 times

Repeat the Cassy Dance steps for Cassy Dance 2.

Discussion Questions :

1. Why are there 'switch costume to' blocks in the Cassy Dance scripts ?
2. Why are there 'wait 2 second' blocks in the Cassy Dance Scripts ?
3. Note Cat1 finishes dancing before the others. What changes are needed to make all the sprites finish dancing at the same time ?
4. What are the blocks of code that make the Cassy Dance sprites jump up and back down at the end of their dance ?

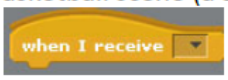
Part C. (Use of events)

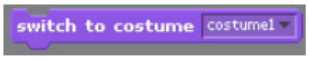
- Make the cat jump up and do a dance when the up arrow is pressed (go to events area to create new script and use 'when the up arrow key is pressed' event)
- Write down the x and y coordinates of Cassy Dance and Cassy Dance2.
- Make the Cassy Dance sprite (which is to the right of the cat) glide to a coordinate that is 40 positions to the right and up 15 positions when the space bar is pressed
- Make the Cassy Dance sprite (which is to the left of the cat) glide to a coordinate that is 40 positions to the left and up 15 positions when the space bar is pressed
- Note that when the space bar is pressed, the Cassy Dance sprites move further and further away from their original starting position.
- Make changes so that when the green flag is clicked to start the project, the Cassy Dance sprites move to the original starting before any dancing starts

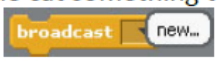
Assignment 4 (Broacasting) :

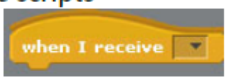
- For this assignment you need to download **summer.sb.**

We will finish the story in Summer.SB. Here are the steps :

1. Open the file summer.sb. Click the flag. What does it do so far?
2. Click on the cat and look at his script. What does the cat broadcast in the last block?
3. We'll make a basketball scene (a second script)
   a. Drag a 

block into the script section.
   b. Click the empty box and choose "basketball scene".
   c. Under looks, drag a 

block into your script
   d. Change costume1 to costume3
   e. Give the cat something to say about playing basketball over summer.
   f. Drag a 

block to the end of this second script.
   g. Click the empty box.
   h. Choose new
   i. Type in movie scene and hit ok.
4. We'll make the background change as well.
   a. Click on the stage
   b. Choose scripts
   c. Drag a 

block into the script section.
   d. Click the empty box and choose "basketball scene".
   e. Under looks, drag a 

block into your script
   f. Change background1 to basketball-court
5. Now add a third scene about going to the movies.
6. Summarize how you can use broadcast to change scenes in a story. Get your work checked off.
7. Now add in another character into each scene like in the role play (i.e. The Crab, The Opponent and The Date). These characters should show and hide.
8. Feel free to add in additional scenes.

Assignment 5 (Use of variable, ask, conditional and loop control structures)

Create a nature project with a butterfly. Next, create a variable called **Fly**. Set the value of **Fly** to 'yes' or 'no' by asking a user if the butterfly should fly in a circle. Then, use an if/else structure to test the value of **Fly**. If the value is 'yes'(true), have the butterfly say "Yeah!" and then fly in a circle by using :

otherwise, if the value is 'no'(false) have the butterfly say "OK, I will stay here".

Next, create a number variable called **Times**. On the true path of the if/else structure, set the value of **Times** to a number by asking a user how many times the butterfly should fly. Be sure to do this as the first step on the true path.

Then, use a loop structure to have the butterfly fly in a circle as many times as the user requested. After the flying, have the butterfly say "Whew, I'm done flying".

Assignment 6 (Randomness) :

- For this assignment you need to download **dice.sb.**

  Finish the dice.sp so that it creates a pair of dice. Create your own look for the dice.

Assignment 7 (Timing) :

- Create your own Timer :

1. Create a variable called timer.
2. When the flag is clicked, initialize the timer to 10.
3. Continually, wait 1 second and check if the timer = 0
   a. output the current time either with a sprite or just show the variable
   b. If the timer = 0 make either the background or a huge sprite say "Time's Up"
4. When the flag is clicked, everything should start over.
5. Be creative as to what you want your program to look like.
6. Make sure the timer stops at 0 and does not continue into negatives.