BDE tutorial

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Loading the World

• Open a new world, with any template
• Save it in a directory that you can find again.
• First: After you have opened the file go into the "Layout" mode by clicking on the green button Add Objects (toward the middle of screen)
• Click more controls. Click drop a dummy at the camera. Rename the dummy 'originalPosition.' To leave the layout mode, click done

Adding Objects

• The objects we will add are in the ocean folder in the web gallery: OceanFloor, Shark and LilFish2
• OR in the local gallery, use the shark and lilFish from the Animal folder

How to add objects to your scene

1) First, drag the oceanFloor into your world
2) In order to add the shark and lilFish2: drag each into your world instead of clicking on add instance
3) As you drag each object in, BEFORE you release the mouse, hold down the shift key and move your cursor forward (into the scene) until you see the yellow outline box
4) If you still can’t see your objects, drag the oceanFloor away from the camera. Move the fish up and then move your oceanFloor back
Writing the method

- Create a world-level method named `sharkChase`
- Drag the following instructions into the method:

```
world.sharkChase No parameters
No variables
```

```
world.sharkChase
```

```
create new parameter
```

```
create new variable
```

Creating a BDE

- Click on `create new event`
- Select `while something is true`
- This event is a while loop with three parts:
  - Begin,
  - During
  - End

The BDE: the conditional

- The first step in writing a BDE is the conditional.
- We want this loop to run while the `shark` is more than one meter away from the `lilFish`.
- Click on `world` in the object tree and go to functions. Drag `a>b` on top of the `<None>`

```
While a > b is true
```

The conditional (cont)

- Select 1 for `a` and `b` (as placeholders).
- Click on `shark` in the object tree
- Click on the `functions` tab
- Drag the `shark distance to` function on top of the first 1. And in the drop down, select `lilFish2`, the entire `lilFish2`.

```
shark distance to
```

```
Begin: Nothing
```

```
During: Nothing
```

```
End: Nothing
```
The BDE: the Begin

• The very first time this while loop is passed, we want the shark to say: Where are you?
• From the object tree, drag the shark on top of the Nothing beside Begin.
• Select the say method and other. Type in: Where are you?

The BDE: the During

• Every time the while loop is passed, we want the sharkChase method to be called.
• Click on world in the object tree and click on the methods tab.
• Drag world.sharkChase onto the Nothing beside During.

The BDE: the End

• The very last time the while loop is passed, when the shark is 1 meter away from the fish, we want the shark to say: Gotcha
• Drag the shark say method on top of the Nothing beside End.
• Select other and type in: Gotcha.

Re-setting the BDE conditional

• Play your world. The while loop only happens once. Let’s create a way to reset the conditional
• Click on create new event and select Let the mouse move <objects>
• Click on Any Object and select create new list
An event to move the objects

- Name the list animals
- With type object
- Add the shark and lilFish2 as the new items.

Play your world

- Now when you play your world, after the shark says Gotcha, click on either the shark or the lilFish2 and move it around the screen.
- Then, the BDE loop will happen again.
  - To move the objects up or down, hold down the shift key while you click
  - To change the direction the objects are facing, hold down the control key while you click

Write a new method

- In the methods tab of the world details panel, click create a new method. Name it fishCircle
- Drag the following code into your method:

Another event type

- Create new event – while something is true
- An empty BDE should appear in your event editor
- Right click on this event and change it to when something becomes true
When something becomes true: the conditional

- In our world, the conditional is: when the fish distance to the shark is less than 1 meter
- Add the conditional to your event to look like this:
  
  ![Diagram of conditional event]

- This event is useful because sometimes, we only want something to happen once instead of called again and again in a loop.

When something becomes true

- Drag in a Do in order on top of the Nothing in this event.
- Drag wait 0.5 seconds and the fishCircle method from the world details panel into the do in order
  
  ![Diagram of event with do in order]

- Play your world

Recap of BDE

- A BDE is a type of while loop
- The Begin will only occur the first time through the loop
- The During occurs every time the while loop is being iterated through
- The End will only occur the last time through the loop
- In your world, it is useful to have something to reset the conditional of your BDE
- Or, you can change your BDE to when something is true when you don’t need a loop, then it only happens once