COMP1021
Introduction to Computer Science

Clicking on the Turtle Window

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Events We Have Looked At

- Other presentations discuss the following events:
  - Click (clicking on a turtle)
    e.g. `turtle.onclick(drawcircle)`
  - Drag (dragging a turtle)
    e.g. `turtle.ondrag(moveturtle)`
  - Pressing a key on the keyboard
    e.g. `turtle.onkeypress(dosomething, "a")`
- In this presentation we look at using this event:
  - Clicking on the turtle window

Clicking on the Turtle Window

- `onscreenclick()` is used for when the user clicks anywhere on the turtle window

- For example:

```
def myfunction(x, y):
    . . .
```

x and y are the location where the click occurred, they are automatically given to the function

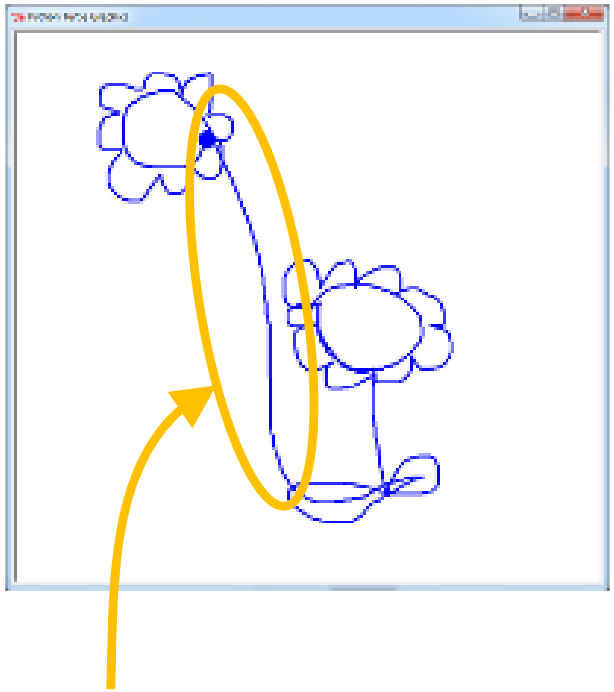
```
turtle.onscreenclick(myfunction)
```

onscreenclick is for clicking on the turtle window

When the user clicks somewhere in the turtle window the `myfunction` *function will be executed*

Improving the Previous Drawing Program

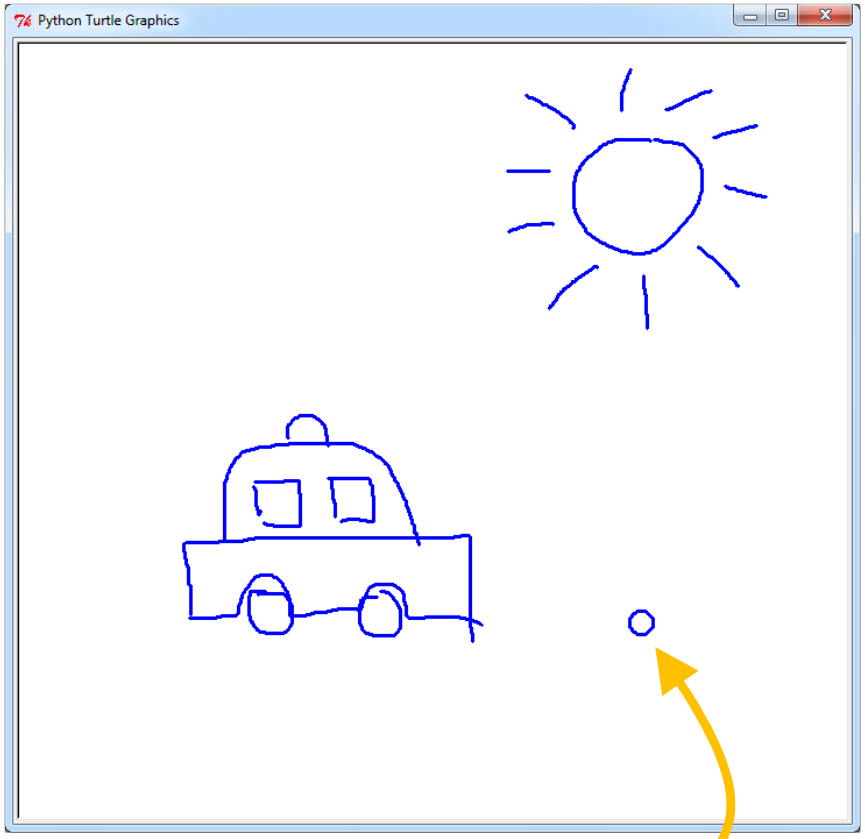
- In a previous presentation we showed a ‘drawing program’ which used the mouse drag event
- A problem with that program is that the resulting lines have to be connected
- We can improve that drawing program by also using the *onscreenclick* event to jump to a new place



When the previous program is used an unwanted line connects everything

Improving the Drawing Program

- Using the onscreenclick event the turtle can ‘jump’ to a new position – without drawing any line from the old position
- An example picture drawn using the improved drawing program is shown on the right
- That means pictures can be created which are not made from a single long line



This is the appearance of the turtle in the improved drawing example

Improved Drawing Program

```
import turtle

def jump(x, y):
    turtle.up()
    turtle.goto(x, y)
    turtle.down()

turtle.ondrag(turtle.goto)
turtle.speed(0)

turtle.onscreenclick(jump)

turtle.done()
```

This function moves the turtle to a new position (x, y) without drawing a line to that position

The turtle goes where it is dragged; the `goto` *function is automatically given the x and y values; the speed is fast enough*

The turtle moves to a new position when the user clicks on the window; the `jump` *function is automatically given the x and y value*

Wait forever for any event to occur; run the appropriate event handler function

Improving the Display

- The code on the previous slide gives the most important code in the program
  (i.e. the code which handles the event)
- This code is also included in the program to make the turtle easier to see

```
turtle.shape("circle")     # Make it look like a circle
turtle.pencolor("blue")    # Looks nicer than black
turtle.width(3)            # Make the drawn lines thicker
```