

Potion Brewer

created by matt pidden

OVERVIEW

This project was created for the FOBISIA Coding Challenge by Matthew Pidden of Kellett School (The British International School in Hong Kong)

Following the brief of creating a program with the theme of “magic”, I created a Real Time Object Recognition program, and turned it into a magical game.

The user has two minutes to find and show to the camera, as many of the 7 objects as they can. These objects act as ingredients for a magical potion. Upon completion of the potion, or the two minutes passing, the user discovers the potion's purpose, and the quality for which they brewed it.

SPECS

The program consists of two python files, with 350+ lines of code. To produce the Object Recognition system, OpenCV was used, and for the UI, pygame was used. Both of these libraries will have to be installed for the program to work.

Inside the folder you will find other files including audio files and files utilized by the machine learning algorithms. Please do not edit any of these.

One file is called “*objectsToFind.txt*” and this file may be edited if you so wish. For more details on this please see below, EDITING OBJECTS TO FIND

INSTALLING LIBRARIES

Python must already be installed on your computer

Next, ensure your *pip* is up to date (use command line / terminal)

```
pip install --upgrade pip
```

Now install OpenCV

```
pip install opencv-python
```

Also install pygame

```
python3 -m pip install -U pygame --user
```

RUNNING THE GAME

You can try to run the game by opening the “PotionBrewer.py” file in IDLE or an interpreter of your choice however depending on your OS, you may run into issues regarding webcam permissions.

On Mac, it is highly likely that if you run the program by using the “*PotionBrewer.py*” file, python will crash due to lack of permission. To fix this use terminal to run the program. First indicate the correct directory by using

```
cd
```

Then drag and drop the folder “Potion Brewer” into terminal and hit enter

```
$ cd /Users/matthewpidden/Desktop/Potion\ Brewer
```

To then run the file use the following command

```
python PotionBrewer.py
```

EDITING OBJECTS TO FIND

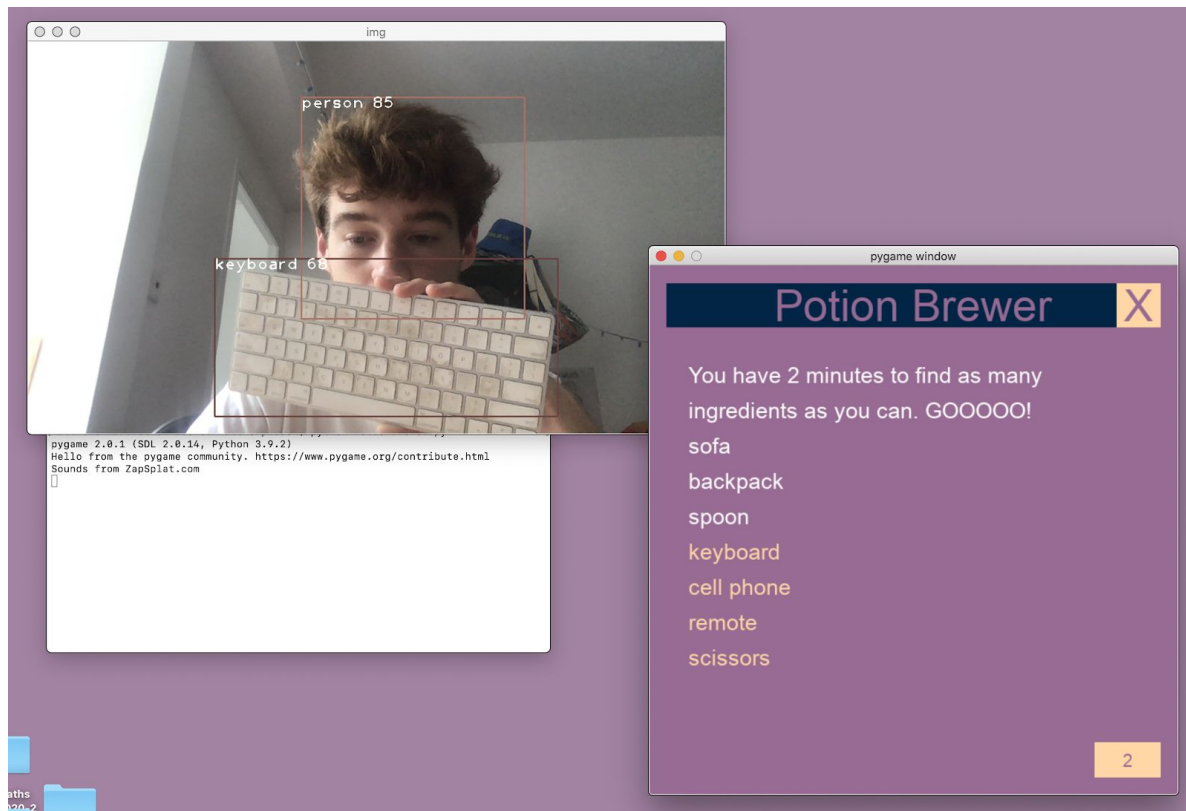
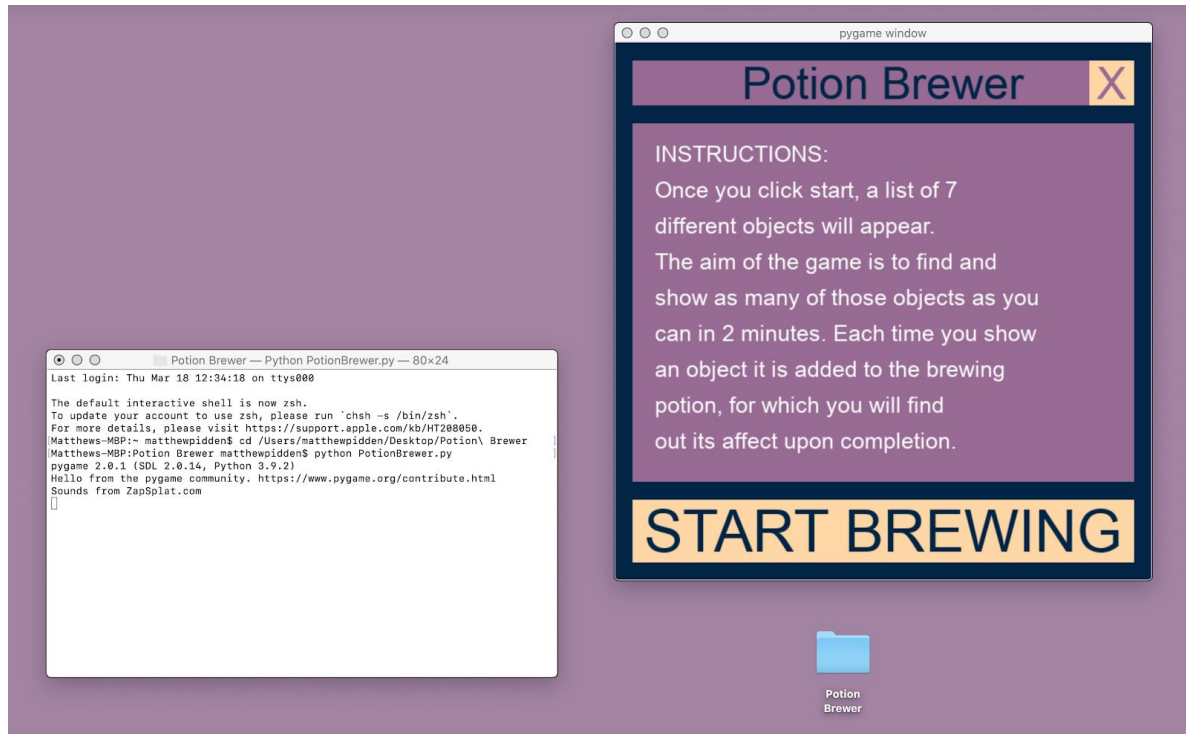
Inside the folder you will find the text file “*objectsToFind.txt*”.

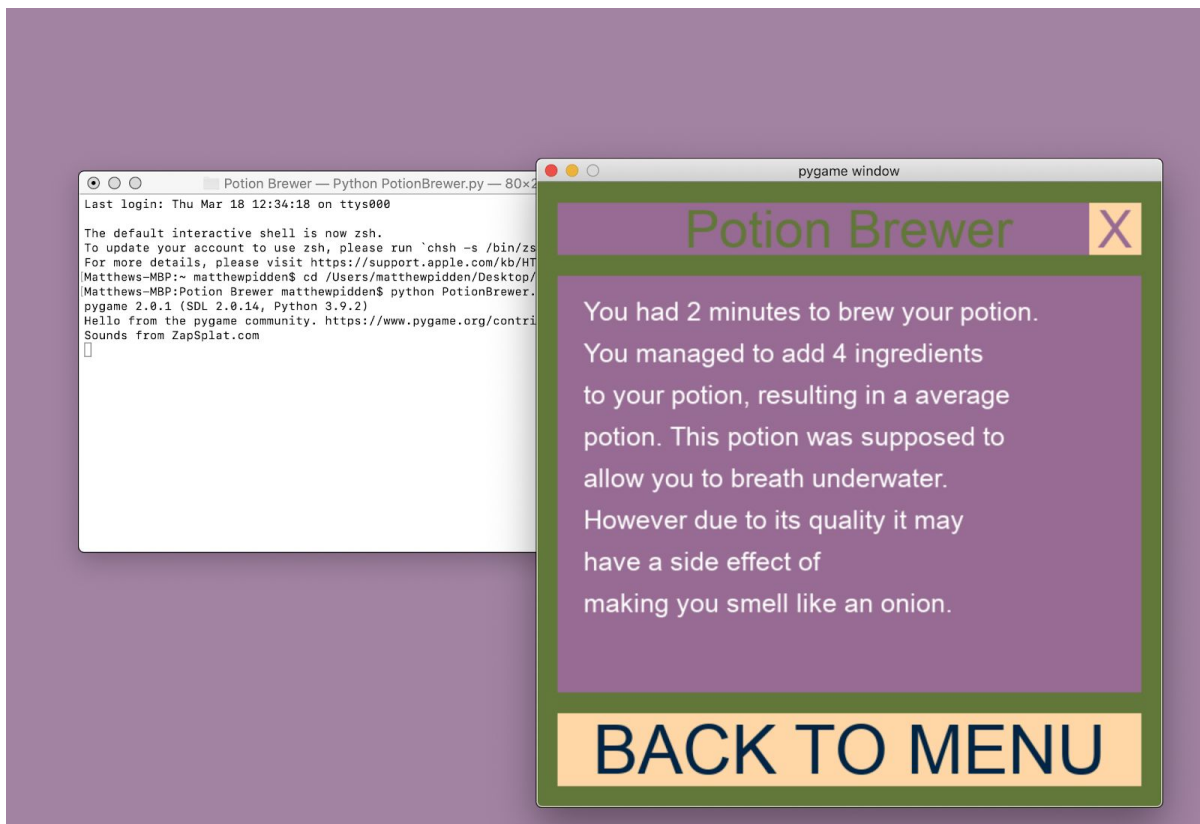
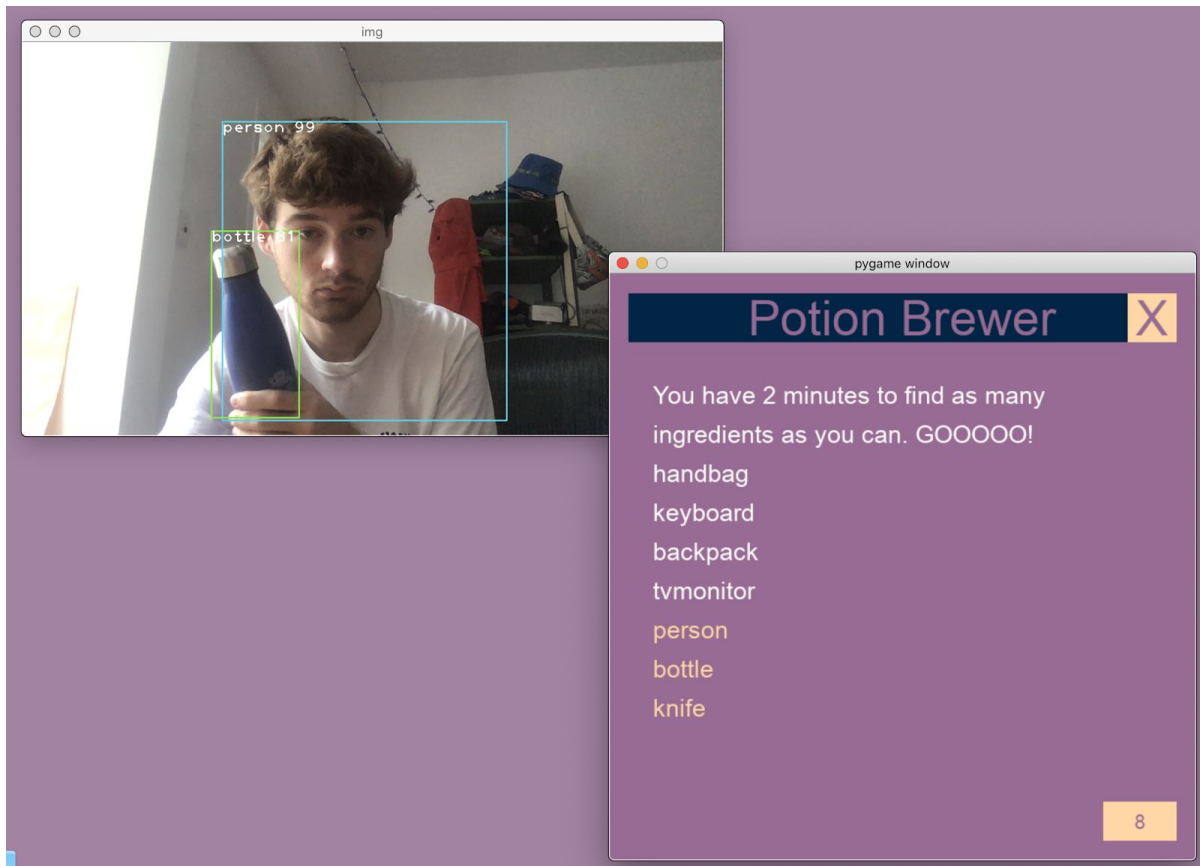
This file contains a list of all the different possible objects a user may be required to find. If you wish to remove an item from this list simply delete the line. You may also add items to the list, however note that the object detection system can only recognize the following 80 objects and so if you choose to add your own objects, ensure they are on this list first. Please copy and paste these items exactly.

person	dog	sports ball	apple	laptop
bicycle	horse	kite	sandwich	mouse
car	sheep	baseball bat	orange	remote
motorbike	cow	baseball glove	broccoli	keyboard
aeroplane	elephant	skateboard	carrot	cell phone
bus	bear	surfboard	hot dog	microwave
train	zebra	tennis racket	pizza	oven
truck	giraffe	bottle	donut	toaster
boat	backpack	wine glass	cake	sink
traffic light	umbrella	cup	chair	refrigerator
fire hydrant	handbag	fork	sofa	book
stop sign	tie	knife	pottedplant	clock
parking meter	suitcase	spoon	bed	vase
bench	frisbee	bowl	diningtable	scissors
bird	skis	banana	toilet	teddy bear
cat	snowboard		tvmonitor	hair drier
				toothbrush

GAMEPLAY

In case you have any problems with the running of this program I have included screenshots and screen recordings to display the game.





Click [here](#) to view gameplay video

QUESTIONS

If you encounter any problems, questions, queries, comments etc please contact me at mpidden@connect.kellettschool.com