Lab Report 01

Virtual Environmen

1. Why install virtual environments?

each project has its own independent environmental dependencies, which will not be affected by changes in the external environment.If there are too many projects, there is no need to check every project.

2. How to Create a virtual environment?

```
#create the venv
 python3 -m venv name_virtual_env
#activate venv
 name_virtual_env\Scripts\activate
```

3. Conda:
   Pip is a Package manager manager and virtualenv is an environment manager,Conda is both.
4. Install a package:

```
python --version                  # Check the Python Version
#if python version 2
python -m pip install <package>  #Virtual environment installation package
#if python version 3
python3 --version                 #Check the Python3 Version
python3 -m pip install <package> #Virtual environment installation package
```

5. Generate requirements.txt file:

```
pip3 freeze > requirements.txt
```

6. Create a HelloWorld project with venv.

```
#Creat a new "HelloWorld" Project on Desktop.
For mac,"Command + F" and type "terminal" to enter Terminal.
cd Desktop/  #Enter and open Desktop.
pip3 list    #It can see which third-party libraries are installed in Python3.
python3 -m venv venv_name(Environment name) #Create a virtual environment that executes where you want                                                    to create venv.
source venv_name/bin/activate   # After the virtual environment is created, use Terminal to run Activate                                        in the current directory, and run the following command to activate
and enter the virtual environment.
#After the above command is executed, (venv_name) is displayed on the left of the command line prompt.
pip freeze           #Open the console in your project and type 'Pip freeze' to see the third-party                              libraries installed in your project)
pip freeze > requirements.txt    #Can generate a requirements.txt file containing all installed third-                                        party libraries
pip install -r requirements.txt  #Batch install Python third-party libraries in requirements.txt file.
deactivate           # Exiting the virtual Environment.
```

7. Pycharm

   I was confused about the project path and virtual environment path before learning. After searching Google, I found that virtual path is the user telling the programming tool (Pycharm) where the virtual environment is in order for the tool to use virtual path.

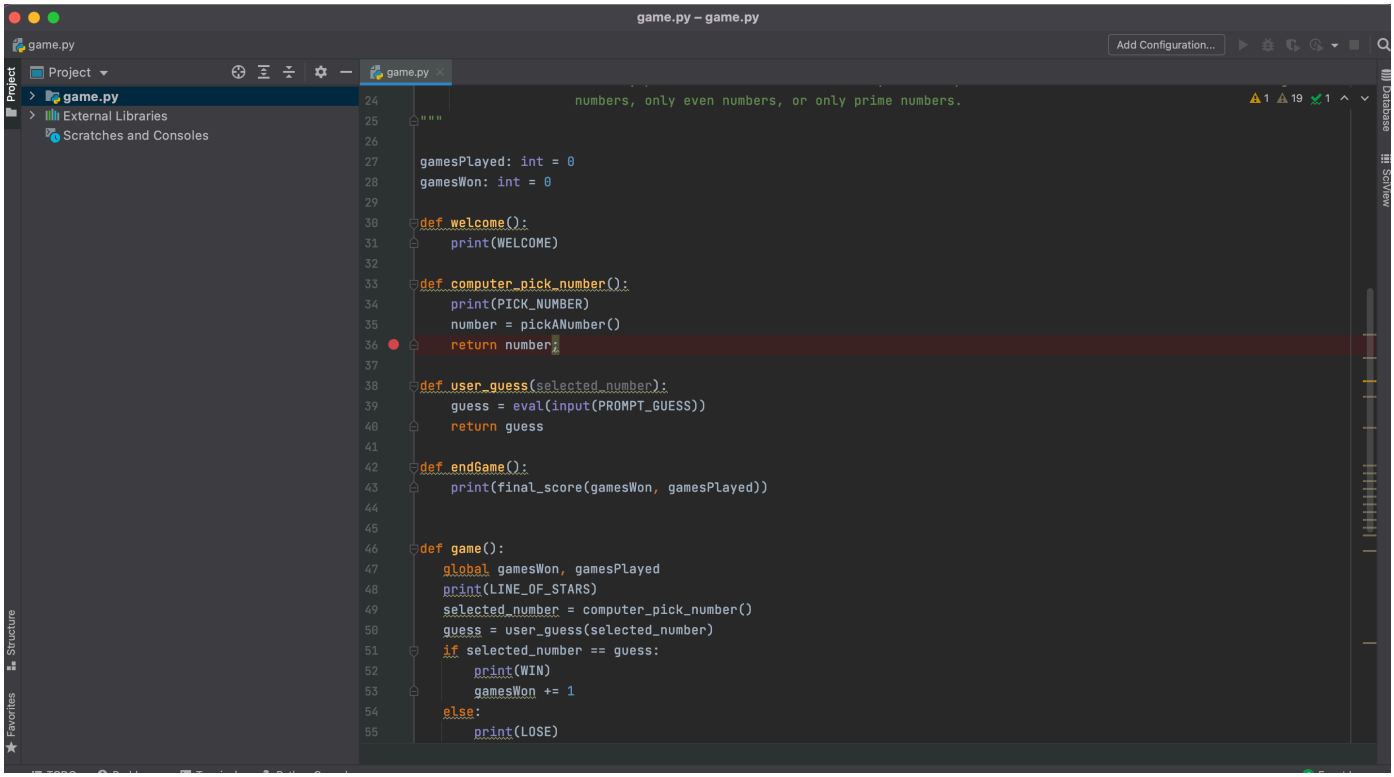
Debugging

Guessing Game

Question 1:

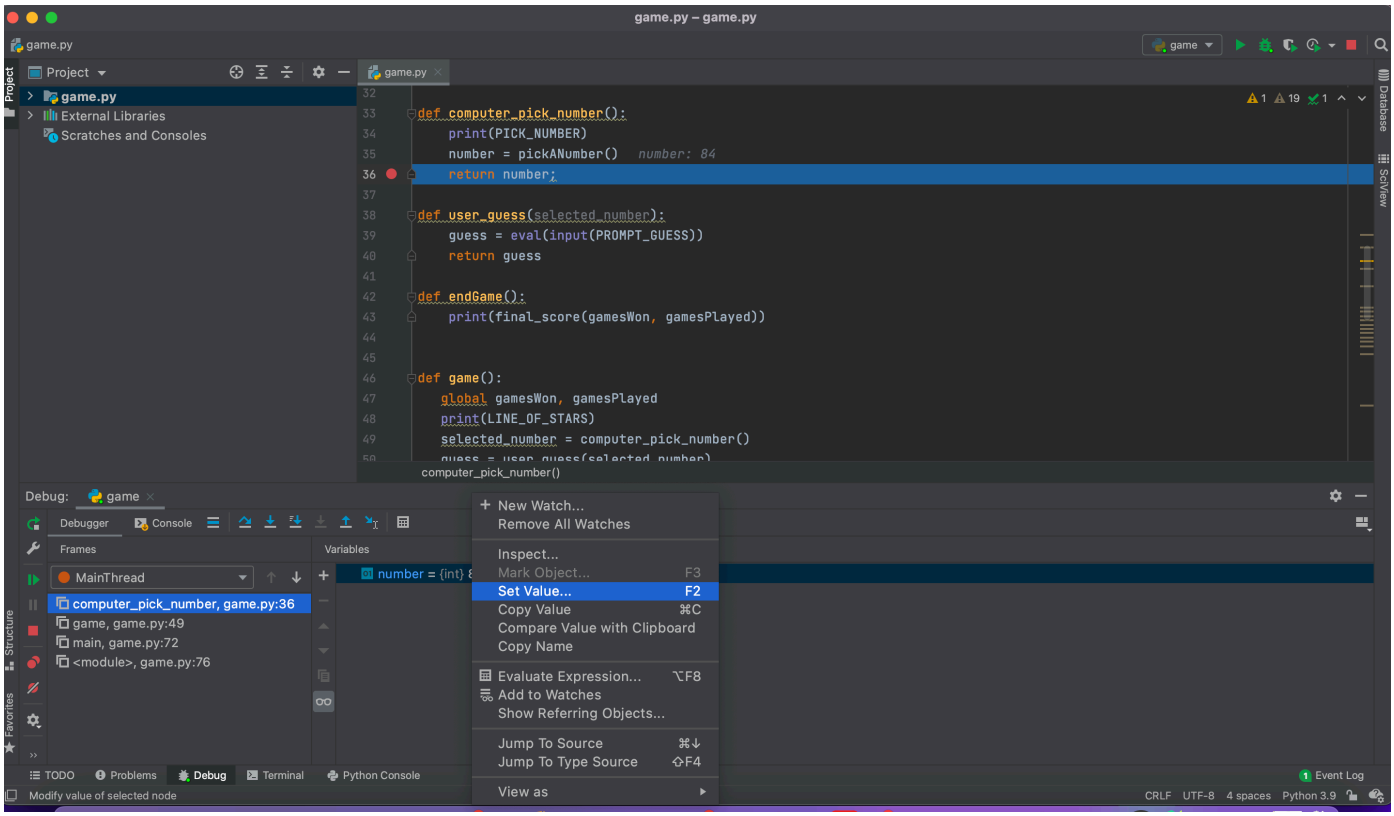
```
random.randint(1,100) #from 0 to 100 Randomly generated numbers.So I think is 1/100.
```

Question 2:



The breakpoint is added to the "return" statement in the image;The goal is to get a randomly generated number at debug so that the same number can be entered in subsequent runs, so that each game can be won.

Question 3:



During the debugging, you can manually set the randomly generated number to "42" after obtaining the randomly generated number. In this way, you can win every game by entering "42"(This is achieved by "Set Value" in the figure).

Debugging Note:

- (F8) : Step over, line by line down, if there is a method on the line will not enter the method.
- (F7) : Step into . If the current line has a method, you can go inside the method. This is usually used to go inside custom methods, not official library methods.
- I think this is a necessary skill for program development and debugging. This function can track the running process of the code, for the purpose of tracking the direction of the program, as well as the change of parameter values in the running process of the program, and can also locate the abnormal running of the program.

Github

My Github Link

- My GitHub Link
- I learned a lot about GitHub from Google and have uploaded the first week's report to GitHub.There are a lot of computer related knowledge on Github, which can better help me finish college and even more advanced studies, and even help me a lot in my work.