**ASSIGNMENT**

**Procedural Programming Term 1**

Ro-Ro-Ro-Your-Bots™

PLAN:

- Read brief thoroughly and make notes

- learn correct **REFERENCING** - APA 7th

- see [APA 7th Referencing Guide :: Library Services :: University of HuddersfieldAPA 7th Referencing Guide :: Library Services :: University of Huddersfield](https://library.hud.ac.uk/pages/apareferencing/)

- Decide how program is going to interact with the user:

- VISUALS? How do I display the status of the robots and workers when all I know how to display is a single line at a time?

**IDEAS:** Research Python modules for manipulating display:

tkinter allows set-up of a GUI –

panda ???

curses ???

**TOO COMPLICATED**

- Name the program ✓

- storyline - humourously dark sci-fi, a la Futurama

- Main functions

* *learn Python* ***STYLE*** *to format code :*
* *Use PEP8 style guide for Python -* [*https://peps.python.org/pep-0008/*](https://peps.python.org/pep-0008/)
* *learn how to format essays at University of Huddersfield:*
  + *line spacing*
  + *font*
  + *alignment*
  + *page numbering*
* *formatting code*

How is the user/supervisor going to control these robots?

- keyboard commands:

|  |  |  |  |
| --- | --- | --- | --- |
| COMMAND | CODE TO TYPE | FUNCTION CODE | NOTES |
| Remove robot |  |  |  |
| Add human |  |  |  |
| Remove human |  |  |  |
| What next ? | - | what\_next() | Main function to get user input |
| HELP | H | instructions() | Show user instruction manual |
| QUIT | Q | quit\_program() | END ENTIRE PROGRAM |
| ADD | A | add\_robot() |  |
| REMOVE | R | remove\_robot() |  |
| EMPLOY | E | employ\_worker() | Sister-function to ADD, but for a human |
| FIRE | F | fire\_worker() | Sister-function to REMOVE, but for a human |
| CHANGE | C | change\_status() | Switch whether worker is busy, idle or off work, and assign to specific tasks |
| MANAGE | M | monitor\_status() | Display all factory activity |
| LOG | L | log\_tasks() | Display tasks yet to be completed, completed already , or add and remove tasks from the |

WHAT I DID:

Watched YouTube Python tutorial on classes - <https://www.youtube.com/watch?v=ZDa-Z5JzLYM&pp=ygUOcHl0aG9uIGNsYXNzZXM%3D>

Established I was going to use classes to store the information for each robot and human.

Created functions to add or remove robots and humans. Because the functions were as yet empty, I included the pass instruction in them so that the program would skip over them without raising errors.

For each function or class I created I included comments, both to remind me of what the code was for, and also to divide it up so I could read it more easily.

I began to work with a method of keeping a back-up file storing the previous version of the file. Only when I was satisfied that the changes I had made since then were going to work correctly did I update the main version of the file. Then I learnt the basics of Git logging.

I used the scratch files function in PyCharm to test isolated sections of code I was working on without having to run the entire program.

I started reading up on articles about how to allow the program to function in real time and on how to use classes.

Then I found out that the brief had been altered so that real time functionality was no longer required and that no classes were to be used, so I amended what I had written to reflect these changes.

The first code I wrote was the intro, then the function for the user to input how many robots and workers they want. I had to sanitise the input as best as I could, then print a response.

*Difficulties encountered:*

initial "How many robots do you want?"

- input control / sanitization :

- printing out workforce loop

list or dictionary ?

- read the brief more carefully

setting up dictionaries  
 - especially doing both robots and humans in one function

- then getting only the keys printed in a loop

working out how to use dictionaries

condensing functions together, making helper functions

control flow – calling functions from other functions

- idea to use "while True" infinite loops

much ado about global and local functions

- security v. readability – reuse variable names in different settings?

Found it very difficult to remove characters from a string, where I was trying to get the user to enter a list separated by commas

Freaked out massively when I realised I needed the dictionaries of workers and robots to indicate their IDLE / WORKING / FINISHED status, not the tasks each were working on. I had it to include 12 status codes to include each task, but it threw out the function for the user to change their statuses manually, as that would discard the data about which task they were on (which needs updating manually separately from their status.

I had to go through the whole program changing task codes for status codes.

Got confused trying to make a time calculator that could format a gross amount of seconds into HH/MM/SS . The calculations kept going way off, too far to be attributed to Python's dodgy decimal divisions. Looking again in the morning I realised it was all down to a typo; I had inputted a 5 instead of a 6.

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