CS50’s Introduction to Programming with Python

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Frank, Ian and Glen’s Letters

FIGlet (https://en.wikipedia.org/wiki/FIGlet), named after Frank, Ian, and Glen’s letters (http://www.figlet.org/faq.html), is a program from the early 1990s for making large letters out of ordinary text, a form of ASCII art (https://en.wikipedia.org/wiki/ASCII_art):

```
 _ _ _          _   _     _     
| (_) | _____  | |_| |__ (_)___ 
| | | |/ / _ \ | __| '_ \| / __|
| | |   <  __/ | |_| | | | \__ \
|_|_|_|\_\___|  \__|_| |_|_|___/
```

Among the fonts supported by FIGlet are those at figlet.org/examples.html (http://www.figlet.org/examples.html).

FIGlet has since been ported to Python as a module called pyfiglet (https://pypi.org/project/pyfiglet/0.7/).

In a file called `figlet.py`, implement a program that:

- Expects zero or two command-line arguments:
  - Zero if the user would like to output text in a random font.
  - Two if the user would like to output text in a specific font, in which case the first of the two should be `-f` or `--font`, and the second of the two should be the name of the font.

- Prompts the user for a `str` of text.
- Outputs that text in the desired font.

If the user provides two command-line arguments and the first is not `-f` or `--font` or the second is not the name of a font, the program should exit via `sys.exit` with an error message.

▼ **Hints**

- You can install `pyfiglet` with:

  ```
  pip install pyfiglet
  ```

- The documentation for pyfiglet isn't very clear, but you can use the module as follows:

  ```
  from pyfiglet import Figlet

  figlet = Figlet()
  ```

  You can then get a `list` of available fonts with code like this:

  ```
  figlet.getFonts()
  ```

  You can set the font with code like this, wherein `f` is the font's name as a `str`:

  ```
  figlet.setFont(font=f)
  ```

  And you can output text in that font with code like this, wherein `s` is that text as a `str`:

  ```
  print(figlet.renderText(s))
  ```

- Note that the `random` module comes with quite a few functions, per docs.python.org/3/library/random.html (https://docs.python.org/3/library/random.html).

Demo

This demo's first output used a random font. Your output may vary.

Before You Begin

Log into cs50.dev (https://cs50.dev/), click on your terminal window, and execute `cd` by itself. You should find that your terminal window's prompt resembles the below:

```
$
```

Next execute

```
mkdir figlet
```

to make a folder called `figlet` in your codespace.

Then execute

```
cd figlet
```

to change directories into that folder. You should now see your terminal prompt as `figlet/ $`. You can now execute

```
code figlet.py
```

to make a file called `figlet.py` where you'll write your program.

How to Test

Here's how to test your code manually:

- Run your program with `python figlet.py test`. Your program should exit via `sys.exit` and print an error message:

  ```
  Invalid usage
  ```

- Run your program with `python figlet.py -a slant`. Your program should exit via `sys.exit` and print an error message:

  ```
  Invalid usage
  ```

- Run your program with `python figlet.py -f invalid_font`. Your program should exit via `sys.exit` and print an error message:

  ```
  Invalid usage
  ```

- Run your program with `python figlet.py -f slant`. Type `CS50`. Your program should print the following:

  ```
     ___________ __________
    / ____/ ___// ____/ __ \
   / /    \__ \/___ \/ / / /
  / /___ ___/ /___/ / /_/ /
  \____//____/_____/\____/
  ```

- Run your program with `python figlet.py -f rectangles`. Type `Hello, world`. Your program should print the following:

  ```
   _____     _ _                        _   _
  |  |  |___| | |___      _ _ _ ___ ___| |_| |
  |     | -_| | | . |_   | | | | . |  _| | . |
  |__|__|___|_|_|___| |  |_____|___|_| |_|___|
                    |_|
  ```

- Run your program with `python figlet.py -f alphabet`. Type `Moo`. Your program should print the following:

  ```
  M   M
  MM MM
  M M M ooo ooo
  M   M o o o o
  M   M ooo ooo
  ```

You can execute the below to check your code using `check50`, a program that CS50 will use to test your code when you submit. But be sure to test it yourself as well!

```
check50 cs50/problems/2022/python/figlet
```

Green smilies mean your program has passed a test! Red frownies will indicate your program output something unexpected. Visit the URL that `check50` outputs to see the input `check50` handed to your program, what output it expected, and what output your program actually gave.

How to Submit

In your terminal, execute the below to submit your work.

```
submit50 cs50/problems/2022/python/figlet
```