1 Python and Wing

Python is the programming language we'll use. Wingware 101 is an IDE (integrated development environment) and is the software that we'll use to process our Python programs. We'll use both the shell and editor sections of Wing.

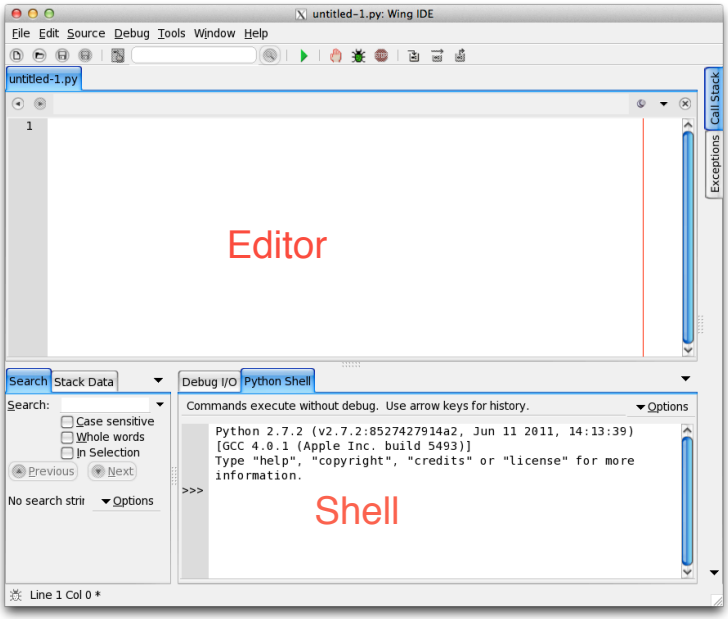

Figure 1: Wingware 101

2 Our first program: `picture_display.py`

For our first program, we'll use some Python's **`media`** capabilities. Our program will:

- open a file dialog and let the user select a file
- have Python load the picture
- make the picture appear on the screen

```
1. import media
2.
3.  filename = media.choose_file()
4. pic = media.load_picture(filename)
5.  media.show(pic).
```

3 Second program: `sunset.py`

A program that takes a picture and makes a copy of it that looks like it was taken at sunset.

```
import media

filename = media.choose_file()
pic = media.load_picture(filename)
media.show(pic)

sunset_pic = media.copy(pic)

for pixel in sunset_pic:
    value = media.get_green(pixel)  # Note: it should be pixel NOT sunset_pic!
    new_green = int(value * 0.7)
    media.set_green(pixel, new_green)

    value = media.get_blue(pixel)   # Note: it should be pixel NOT sunset_pic!
    new_blue = int(value * 0.7)
    media.set_blue(pixel, new_blue)

media.show(sunset_pic)
```

Red (255, 0, 0)
Green (0, 255, 0)
Blue (0, 0, 255)
White (255, 255, 255)
Black (0, 0, 0)

For each pixel in sunset pic get the green component of sunset reduce the green by 30%.
Set the green component to sunset.
Do same for blue.

4 A general methodology: Design, Code, Verify

- Design: determine the approach
- Code: write the code
- Verify: test it by running the code to see if it works as expected