

Introduction to Computer Programming

Lecture 1.3:

Introduction to Spyder

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What is Spyder?

Spyder is an Integrated Development Environment (IDE)

An IDE is a suite of tools used to write programs:

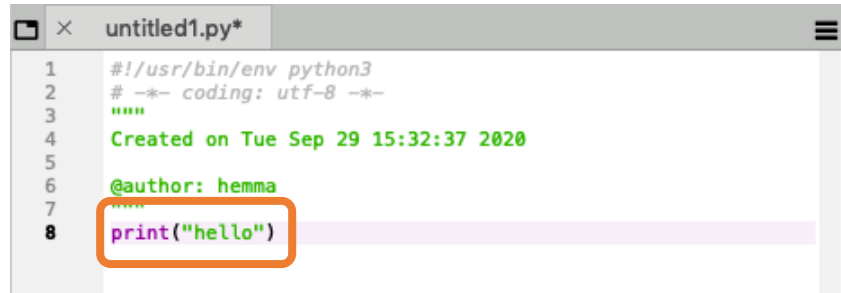
- A code editor
 - Syntax highlighting
 - Code autocomplete
 - Highlighting of code errors/warnings, and hints on how to fix them
- Automated build tools:
 - build/run programs within the editor
 - display output
 - display variables and values
- More advanced tools e.g. debuggers



Why Spyder?

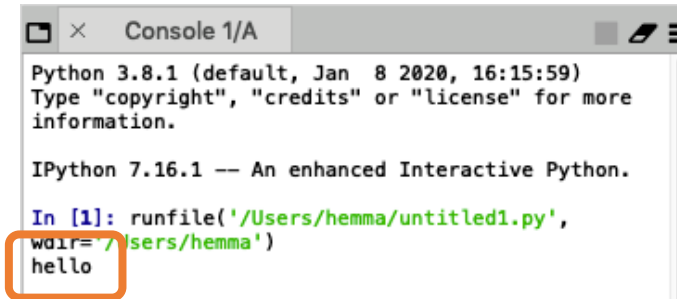
Python console built into the editor

Write code



```
1  #!/usr/bin/env python3
2  # -*- coding: utf-8 -*-
3  """
4  Created on Tue Sep 29 15:32:37 2020
5
6  @author: hemma
7  """
8  print("hello")
```

View program output

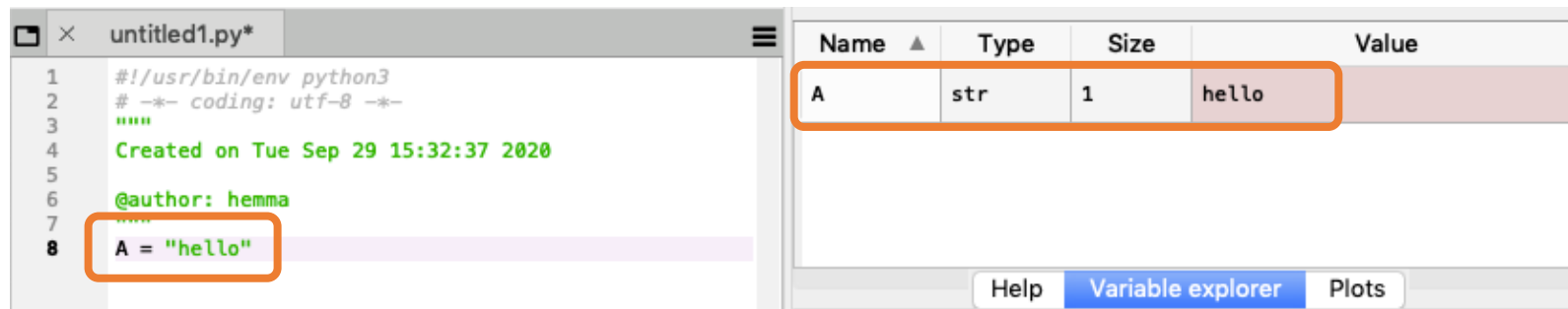


```
Python 3.8.1 (default, Jan 8 2020, 16:15:59)
Type "copyright", "credits" or "license" for more
information.

IPython 7.16.1 -- An enhanced Interactive Python.

In [1]: runfile('/Users/hemma/untitled1.py',
          wdir='/Users/hemma')
hello
```

List of variables in program



The screenshot shows the Spyder interface with the code editor on the left and the Variable explorer on the right. The code editor shows the same script as before, but with the line `A = "hello"` highlighted. The Variable explorer panel on the right displays a table of variables in the current namespace.

Name	Type	Size	Value
A	str	1	hello

At the bottom of the Variable explorer, there are tabs for "Help", "Variable explorer" (which is active), and "Plots".

Why Spyder?

Syntax highlighting

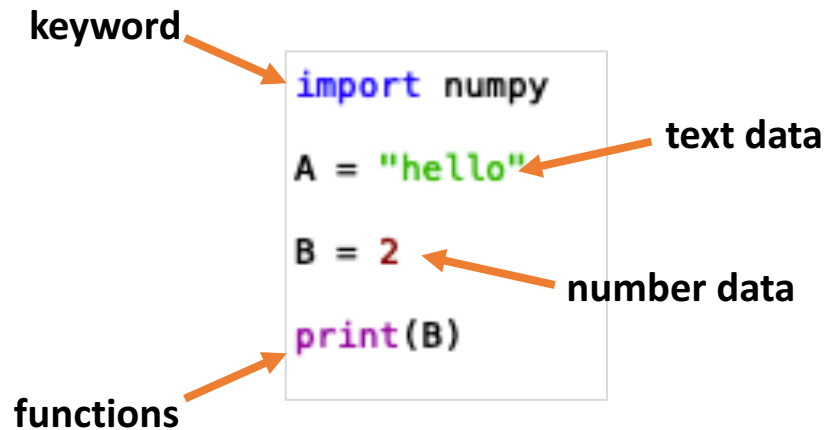
keyword

functions

```
import numpy
A = "hello"
B = 2
print(B)
```


text data


number data

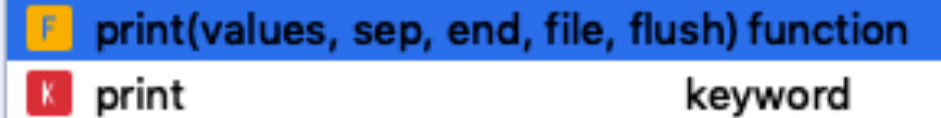


Code suggestions

```
import numpy
A = "hello"
B = 2
prin
```

 print(values, sep, end, file, flush) function

 print keyword



Why Spyder?

Quick access to python documentation

```
import numpy
```

```
A = "hello"
```

```
B = 2
```

```
print()
```

```
print(*values: object, sep: Optional[Text]=..., end:
      Optional[Text]=..., file: Optional[_Writer]=...,
      flush: bool=...) -> None
```

```
print(value, ..., sep=' ', end='\n', file=sys.stdout,
      flush=False)
```

Prints the values to a stream, or to sys.stdout by default.
Optional keyword arguments: file: a file-like object
(stream); defaults to the current sys.stdout.
sep: string inserted between values, default a space.
end: string appended after the last value, default a
newline.
flush: whether to forcibly flush the stream.

Highlighting of code errors/warnings

warning



1

2

3

4

5

6

7

8

```
import numpy
```

```
A = "hello"
```

```
B = 2
```

```
print(B)
```

error



Hover cursor to see error



1

2

3

4

5

6

```
import numpy
```

```
Code analysis
```



```
'numpy' imported but unused (pyflakes E)
```



7

8

9

10

```
print(B)
```

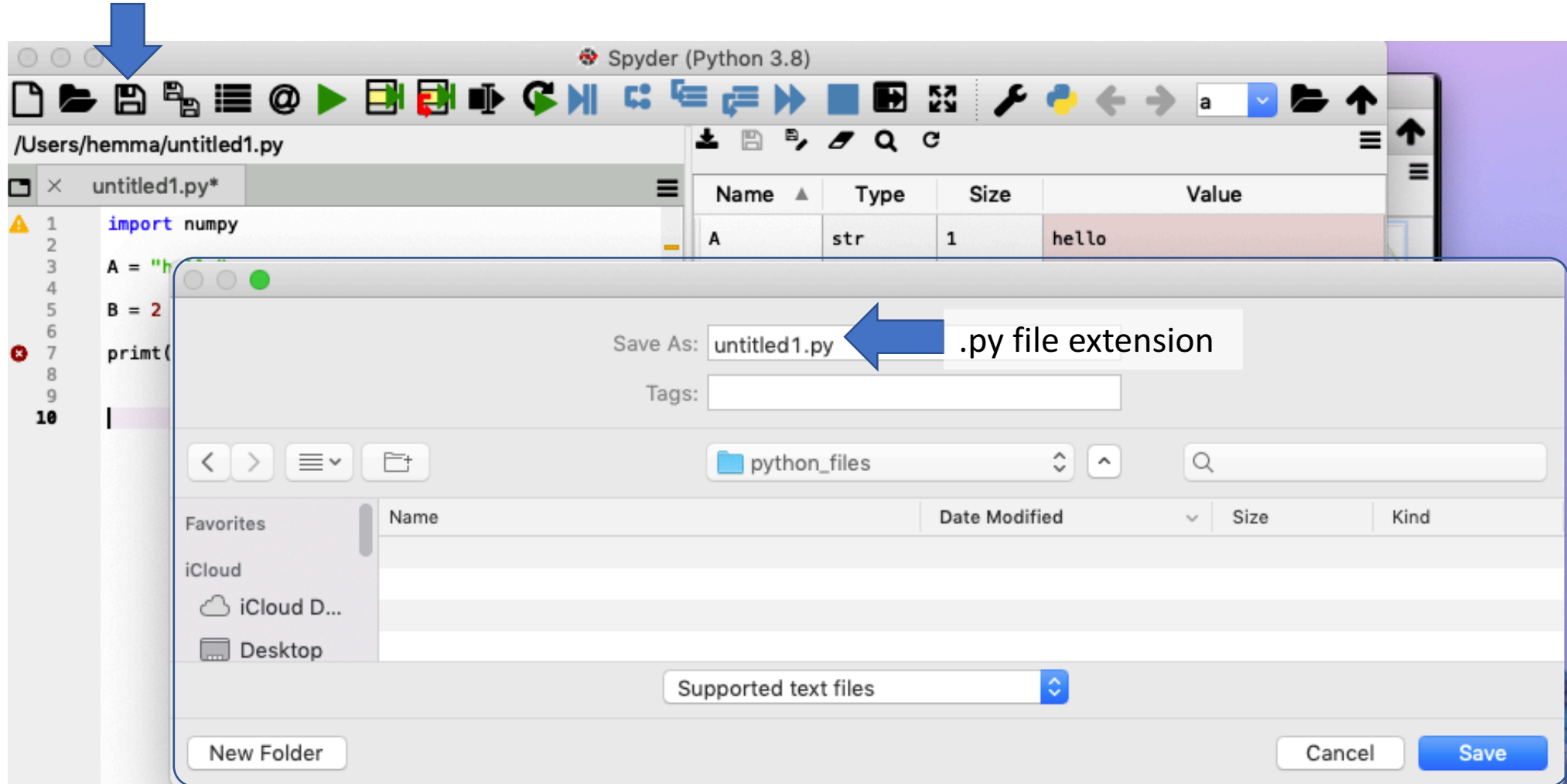
```
Code analysis
```



```
Undefined name 'print' (pyflakes E)
```

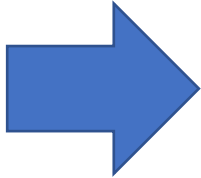
Saving a file

save

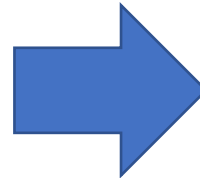
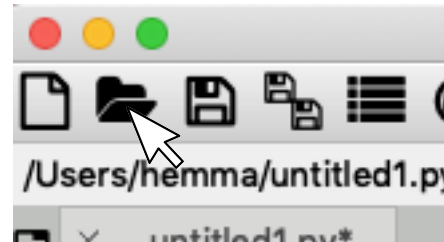


Opening a .py file

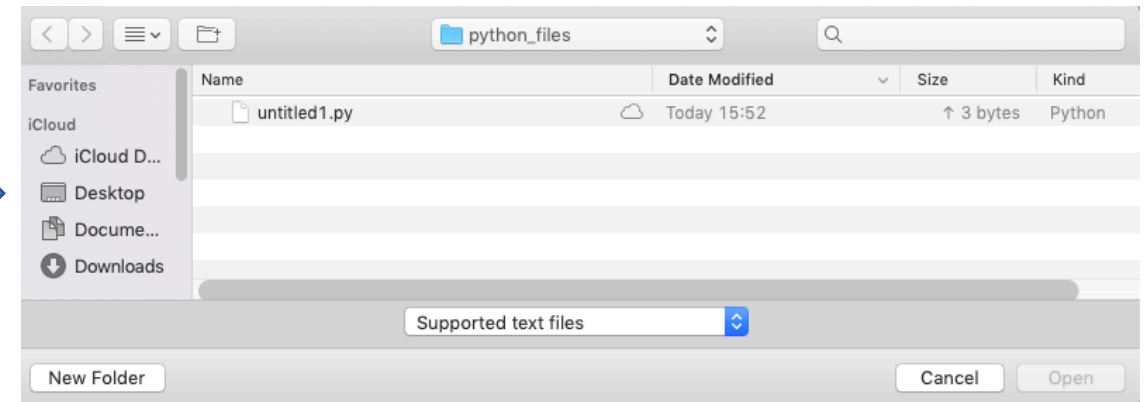
Open Spyder



Open



Select file

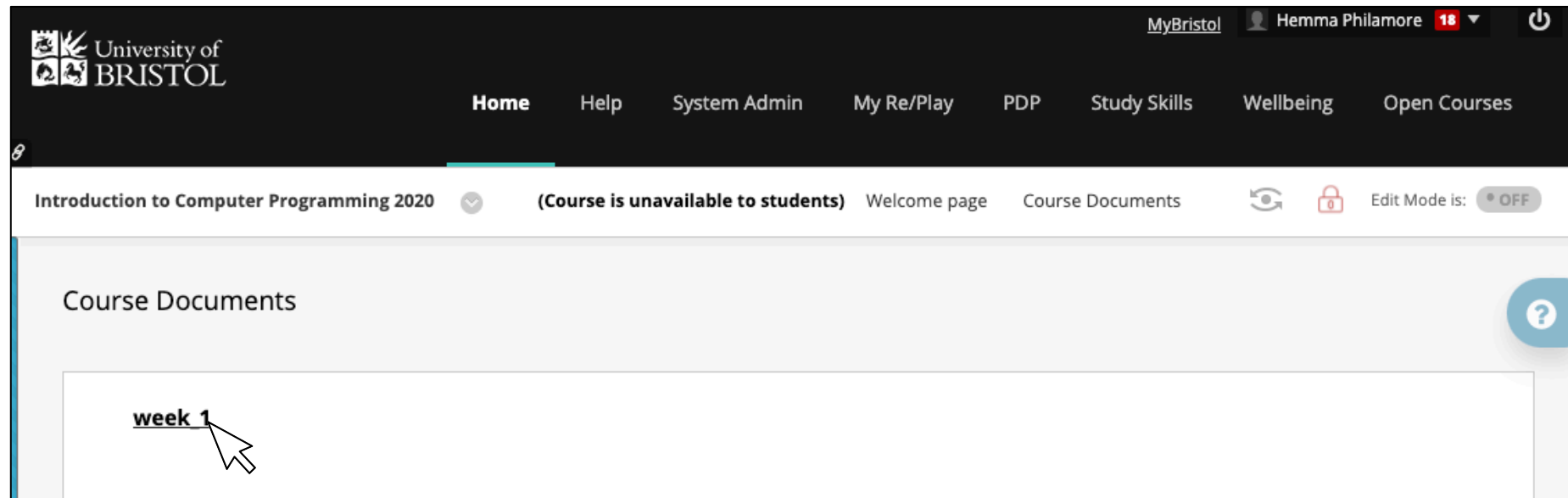


Practice Exercises

Navigate to the **Introduction to Computer Programming 2020** page on Blackboard

Select: **Course Documents**

Select: **week 1**



Select: **exercises week 1**

Practice Exercises

Take any problems you have to the online drop-in sessions, every **Wednesday**

Live support from helpful, friendly teaching assistants by video chat

Bring your solution to the exercises to the group tutorial, every **Friday**

These are compulsory!

Attendance will be recorded