L-1
Introduction

ENGG1330
Computer Programming I

SCHOOL OF
COMPUTING &
DATA SCIENCE
The University of Hong Kong

Course Details

Teaching Team · Lectures · Tutorials · Assessment

Ed

Discussion Forum · Lecture Slides and Activities · Tutorial

Goal:
Develop your ability to solve problems

Programming makes your reasoning executable

Run it

Test it

Change it

Try again

Why Develop Your Own Ability?

Being able to solve a problem
includes understanding why the solution works

Being given a solution
does not mean you understand it

Why Learn to Code?

Turn your own ideas into working solutions

→ →

Your idea → Code → Working solution

What Will This Program Do?

Predict before running

PY main.py

```
1 print(2 + 3)
2
```

Download: engg1330.dirk.hk/lec_01_add_numbers.py

PY main.py

```
1 print("2" + "3")
2
```

Download: engg1330.dirk.hk/lec_01_join_text.py

You learn to code by experimenting

Predict → Change → Run → Explain

Ed

How to run code on Ed?

Let’s Get to Know You

Printing Text

main.py

```
1 print("Hello, world!")
2 print("I am learning Python")
3
```

Download: engg1330.dirk.hk/lec_01_printing_text.py

Arithmetic

main.py

```
1 print(28 + 12)
2 print(3 * 28)
3 print(100 - 3 * 28)
4
```

Download: engg1330.dirk.hk/lec_01_arithmetic.py

Variables

main.py

```
1 price = 28
2 quantity = 3
3 total = price * quantity
4 print(total)
5
```

Download: engg1330.dirk.hk/lec_01_variables.py

Updating Variables

main.py

```
1 score = 10
2 print(score)
3 score = score + 5
4 print(score)
5 score = score - 2
6 print(score)
7
```

Download: engg1330.dirk.hk/lec_01_updating_variables.py

Comments

main.py

```python
# Convert minutes to seconds
minutes = 7
seconds = minutes * 60
print(seconds)

```

Download: engg1330.dirk.hk/lec_01_comments.py

Strings and Numbers

main.py

```
1 print(2 + 3)
2 print("2" + "3")
3 print("2" * 3)
4
```

Download: engg1330.dirk.hk/lec_01_strings_numbers.py

Formatted Strings

main.py

```python
name = "Ada"
score = 15
print(f"{name} scored {score} points")

```

Download: engg1330.dirk.hk/lec_01_formatted_strings.py

Input

main.py

```python
name = input("Your name: ")
print("Hello", name)

```

Download: engg1330.dirk.hk/lec_01_input.py

Numeric Input

main.py

```
1 price = 28
2 quantity = int(input("How many lunches? "))
3 total = price * quantity
4 print("Total:", total)
5
```

Download: engg1330.dirk.hk/lec_01_numeric_input.py

Decimal Numbers

main.py

```python
metres = float(input("Length in metres: "))
centimetres = metres * 100
print("Centimetres:", centimetres)

```

Download: engg1330.dirk.hk/lec_01_decimal_numbers.py

Comparisons

main.py

```
1 score = 15
2 print(score >= 10)
3 print(score == 20)
4 print(score != 20)
5
```

Download: engg1330.dirk.hk/lec_01_comparisons.py

Making Decisions with if

main.py

```
1  temperature = 31
2
3  if temperature >= 30:
4      print("Switch on the fan")
5
6  print("Check complete")
7
```

Download: engg1330.dirk.hk/lec_01_if_statement.py

An Alternative with else

main.py

```
1  temperature = 31
2
3  if temperature >= 30:
4      print("Switch on the fan")
5  else:
6      print("Keep the fan off")
7
```

Download: engg1330.dirk.hk/lec_01_if_else.py

More Choices with elif

main.py

```
1 temperature = 32
2 if temperature >= 35:
3     print("High fan speed")
4 elif temperature >= 30:
5     print("Low fan speed")
6 else:
7     print("Fan off")
8
```

Download: engg1330.dirk.hk/lec_01_if_elif_else.py

Coding Challenge

Takeaways

Solve problems with code you understand

Write

Test

Explain