

國立臺灣大學

Problem Set – While

Computer Programming (EE3031), F21

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Problem W01: Count Carry

- *estimate_carry.py* estimates the number of carries.
- In this problem, you are asked to implement *count_carry.py* which returns the **exact** number of carries.

```
fin2017 > python3 count_carry.py
enter n1: 123
enter n2: 778
2
fin2017 > python3 count_carry.py
enter n1: 999
enter n2: 2
3
fin2017 > python3 count_carry.py
enter n1: 123
enter n2: 35
0
fin2017 >
```

Prob. W02 Square Root

- In *ProblemSet_For*, *square_root.py* prints out the first 10 guesses of the square root of a number. This is impractical because 10 guesses may be too many or too few.
- One solution is to keep guessing until two consecutive guesses are close enough.
- Re-implement *square_root.py* so that it keeps guessing until the error, $|a_i^2 - x|$, is less than $1e-8$.

```
fin2017 > python3 w02_square_root.py
```

```
enter a positive integer: 3
```

```
guess 0: 1.5000000000
```

```
guess 1: 1.7500000000
```

```
guess 2: 1.7321428571
```

```
guess 3: 1.7320508100
```

```
error = 8.47e-09
```

```
fin2017 > python3 w02_square_root.py
```

```
enter a positive integer: 100
```

```
guess 0: 50.0000000000
```

```
guess 1: 26.0000000000
```

```
guess 2: 14.9230769231
```

```
guess 3: 10.8120539255
```

```
guess 4: 10.0304952039
```

```
guess 5: 10.0000463565
```

```
guess 6: 10.0000000001
```

```
error = 2.15e-09
```

```
fin2017 >
```