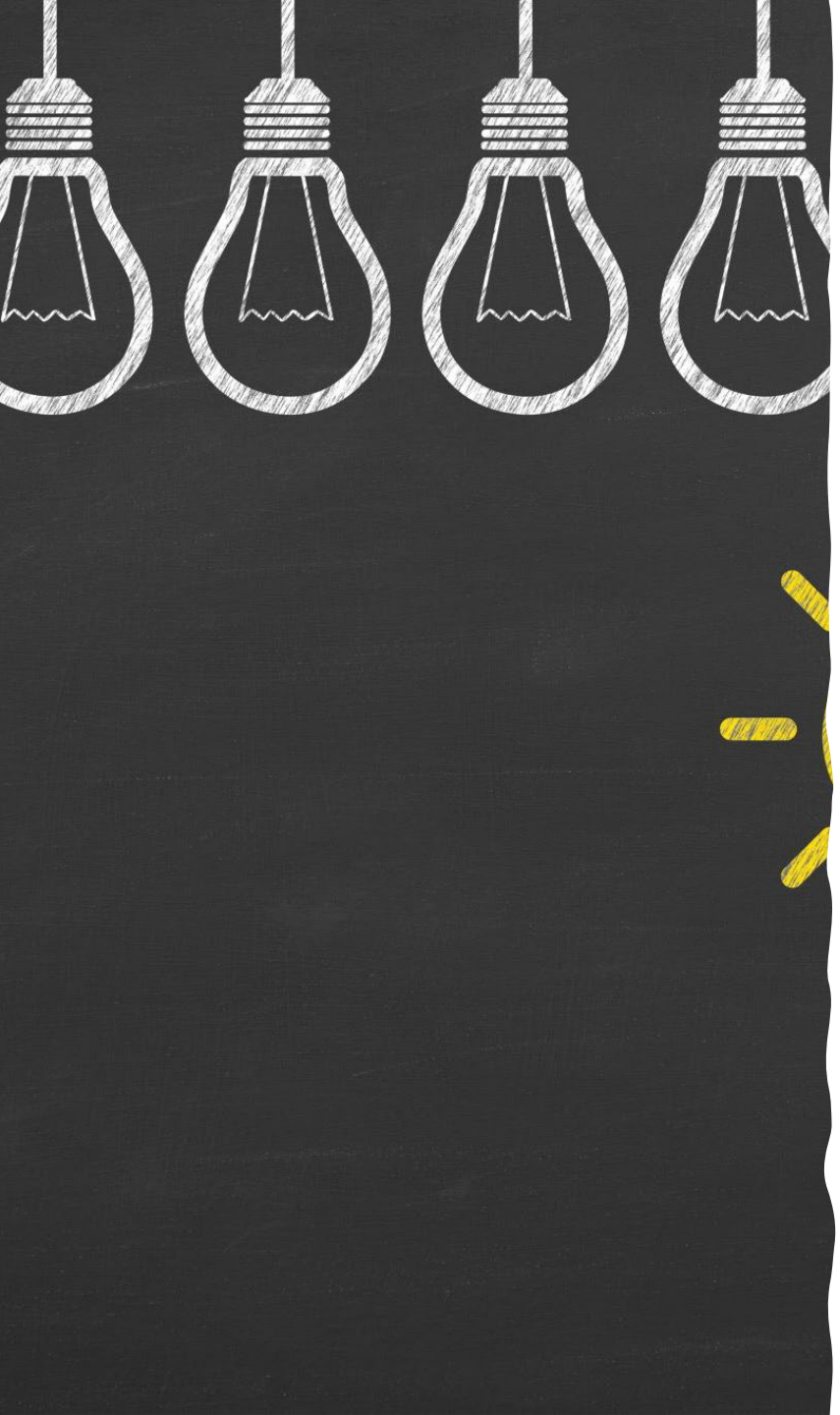


CMSC 105 Elementary Programming

Acknowledgement: These slides are adapted from slides provided with “Introduction to Programming Using Python, Liang (Pearson 2013)” and slides shared by Dr. Jory Denny

Example: Computing the area

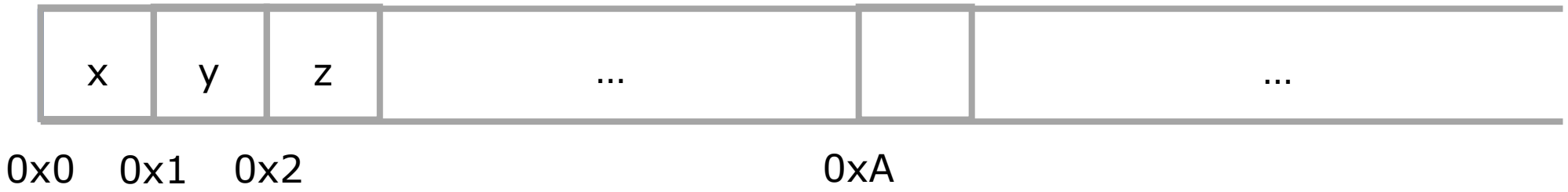
ComputeArea.py

```
1.  # Assign a value to radius
2.  radius = 20
3.
4.  # Compute the area
5.  area = radius * radius * 3.14159
6.
7.  # Display the result
8.  print("The area for a circle with radius",
          radius, "is", area)
```

Let's practice tracing, but first a note on memory

Memory

- **Memory** is storage for data and programs
- We will pretend that memory is an infinitely long piece of **tape** separated into different **cells**
- Each cell has an **address**, i.e., a location, and a **value**
- In the computer these values are represented in **binary** (0s and 1s) and addresses are located in **hexadecimal** (base 16, 0x)



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7. # Display the result
8. print("The area for a circle with radius
          radius, "is", area)
```

Output

```
The area for a circle with
radius 20 is 1256.636
```

Memory

```
radius: 20
area:   1256.636
```

A special symbol = gives a value to a variable, called assignment.

Actually operations are evaluated in a specific order. Temporary values are stored for these intermediate computations.

print can output a series of values separated by a comma. Each value is separated by a space in the output

Exercise 1

Draw a flowchart and write a Python program to solve the following-

If today is Thursday and you are planning to meet a friend after 10 days. What day is in 10 days? Just output the day number.

Note: Assume Sunday is day 0 of the week

Trace the execution.

Exercise 2

- Draw a flowchart and write a program to compute sales tax for a purchase. The program should ask the user to input the purchase amount and tax rate is 6%. The program should display the sales tax amount (rounded off).

Trace the execution.

Exercise 3

- Draw a flowchart and write a program to read side length of a square and display the area and perimeter.

Trace the execution.

Thank you!
Questions?