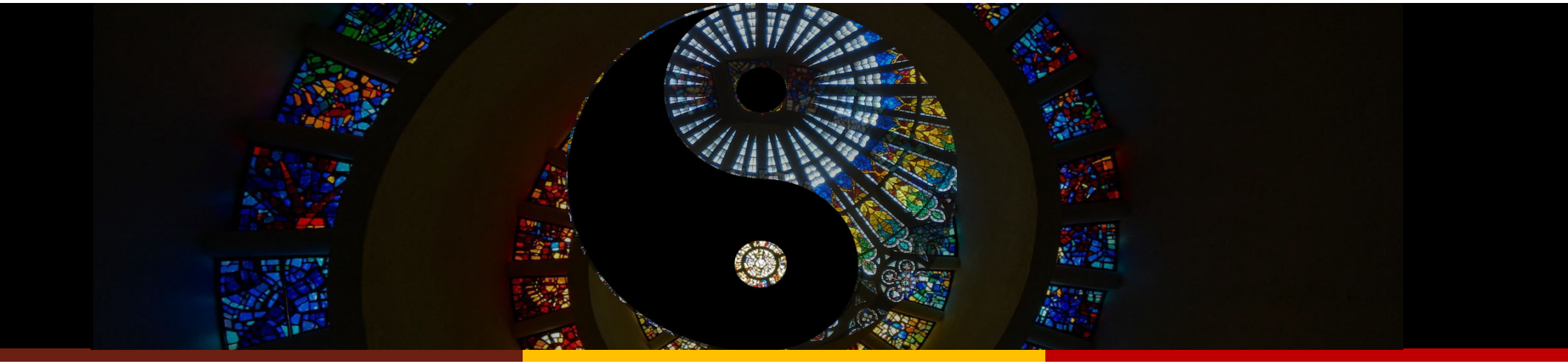


Logical Thinking of Informatics Lab 2

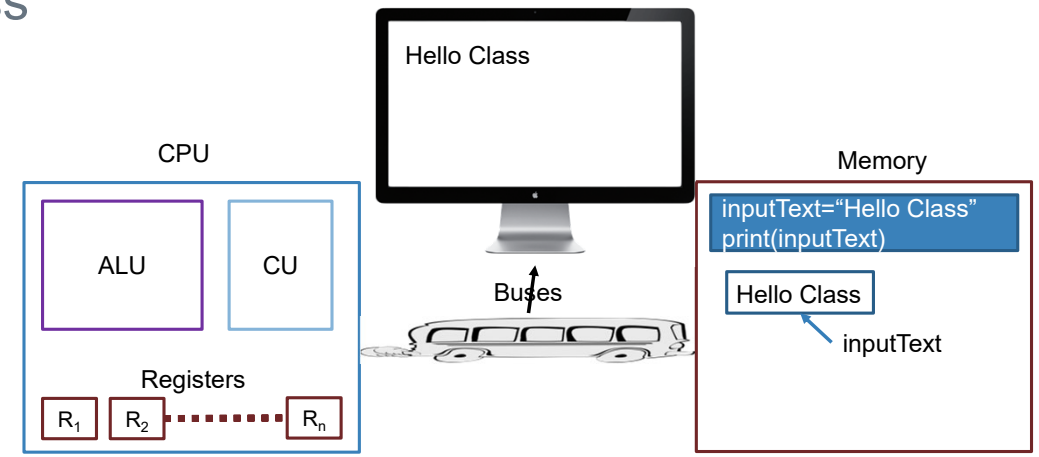
Python Basics

Variables

Variable

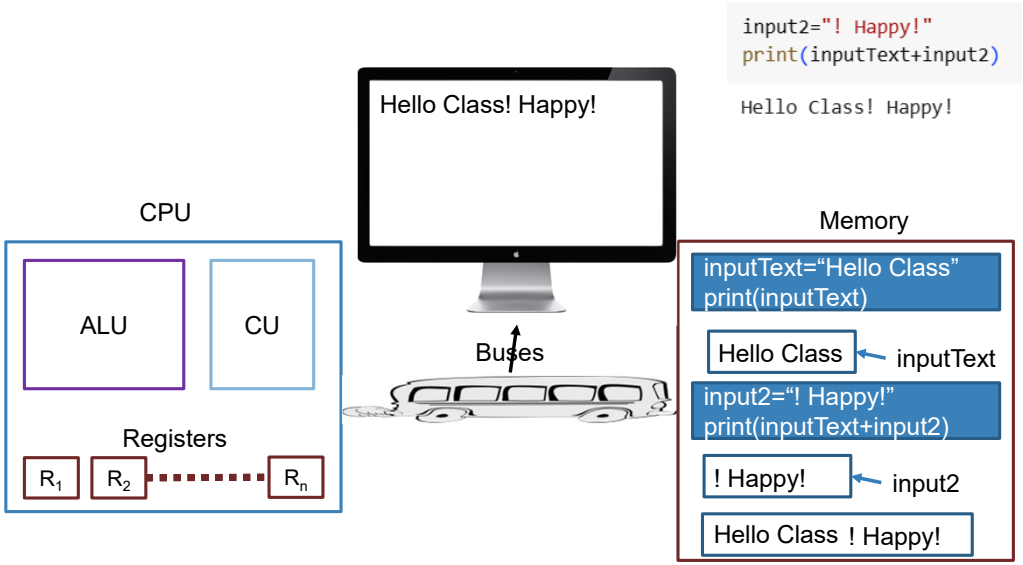
- Variables are spaces to store values in computers
- Ex:

```
inputText="Hello Class"
print(inputText)
```



Variables (Contd.)

- Retrieve and use the stored values by calling these names



Let’s Try This:

```
inputText = input()
num=10
print("Hi " + inputText + " ! We love you" + num + "times! ")
```

Data Types

Strings, Integers, Floats,
Lists, Tuples, Sets, key value pairs.

Type

```
num=10
inputText=input()
print(type(num))
print(type(inputText))
```

Data Types

- Numeric type
  - int
  - float
  - long
  - bool
- String type
- Container type
  - list
  - set
  - tuple

Datatype - Integers

- Numeric type
- Can combine with some operators

```
In [7]: num=num+7
        print(num)
```

```
17
```

Datatype – Strings

```
inputText=input()
num=10
num=str(num)
print("Hi " + inputText + "! We love you " + num + " times!")
```

Exercise NOW:

- What is the output for the following code?

```
inputText=input()
anotherNum=11
print(anotherNum*inputText)
```

Datatype – Floating Numbers

```
anotherNum=float(anotherNum)
print(anotherNum)


floatTest=anotherNum/3
floatTest2=floatTest+10
print(floatTest)
print(floatTest2)
```

Datatype - List

- A list is a data structure that is an ordered sequence of elements
  - Lists are defined by having values between square brackets [ ]
  - Each element or value that is inside of a list is called an item

```
myList=[]
myList2=["test",3,18.0,"hello"]
print(myList)
print(myList2)

myList2.append(3.3)
myList2.append(10/3)
myList2.append("apple")
print(myList2)
```

Datatype – List Related Operations

- append(): add an element in the end
- insert(): add an element at a given position

```
myList2.insert(2,"Kevin")
print(myList2)
```

- len(): return the length of the list

```
print(len(myList2))
```

Datatype – List Related Operations (Contd.)

- count(): the number of occurrences of a given element

```
myList2.insert(4,"Kevin")
kevinCount=myList2.count("Kevin")
print(myList2)
print(kevinCount)
```

Datatype – List Related Operations (Contd.)

- index(): returns the position of the first occurrence of the given element

```
print(myList2.index("hello"))
print(myList2.index("Apple"))
```

Keep Receiving Inputs

Let’s Type Following Codes

```
inputList=[]
while True:
    try:
        inputList.append(input())
    except EOFError as e:
        break

print(len(inputList))
print(inputList)
```

Enter "<Ctrl>+d" or <Control>+d
In the end of the input

Possible Outputs

```
inputList=[]
while True:
  try:
    inputList.append(input())
  except EOFError as e:
    break

print(len(inputList))
print(inputList)
```

```
Hi
 How
 are
 you!!?

4
['Hi', ' How', ' are', ' you!!?']
```

```
inputList=[]
while True:
  try:
    inputList.append(input())
  except EOFError as e:
    break

print(len(inputList))
print(inputList)
```

```
A
very
nice
afternoon
in
the
classroom.


8
['A ', 'very ', 'nice ', 'afternoon', 'in ', 'the', 'classroom.', '']
```

Data Operations

+ - ÷ × ...

Data operations – Integers, Floats

- Operations
  - + - ÷×
  - Exponentiation **
  - Remainder %

String Operations - Split

- Split string according to delimiter string
- Return list of substrings
- Example:

```
myString="hello_every_one_!_this_is_a great afternoon"
splitResult=myString.split("_")
print(splitResult)
```

String Operations - Slice

- [x:y]: from x position and before y position
- Example:

```
sliceString=myString[7:12]
print(sliceString)
```

String Formatting Using %s

- %s for string
- %d for signed decimal integer
- %f for floating point real number
- Example

```
tempInt=21
TAName="Debby"
print("%d students are posing questions to GEC 1506 TA %s" % (tempInt,TAName))
```