Introduction to Programming

2017 Fall Midterm

범위는 Lecture 1(Python Basic), Lecture 2(Conditions, while-loop), Lecture 3(Variables, Types), Lecture 4(Functions), Lecture 5(Local/Global Variables, Graphical Objects) 입니다.

Python Basic

다음 단어에 대한 간단한 설명을 써라.

|  |  |
| --- | --- |
| 1 | Program  Sequence of instructions |
| 2 | Instructions  Operations that the computer can already perform |
| 3 | Debugging  Find the mistake and fix it. |
| 4 | Syntax Error  Grammatically wrong code; Python cannot understand the program |
| 5 | Runtime Error  While executing the program, the program suddenly terminates with an error. |
| 6 | Semantic Error  The program runs without error messages, but the result is not supposed to do. |

Operations

다음 코드의 결과값을 예상하라.

|  |  |
| --- | --- |
| 1 | a = 3/2  print(a) 1.5 |
| 2 | a = 5/3\*3  print(a) 5.0 |
| 3 | a = 5//3\*3  print(a) 3 |
| 4 | a = 3\*3\*\*3  print(a) 81 |
| 5 | a = 5/(2//3)  print(a) Error |
| 6 | a = 3+6/2  print(a) 6.0 |
| 7 | a = 3 == 2  print(a) False |
| 8 | a = (100, 200)  b = (100, 200)  print(a == b) True |
| 9 | a = (100, 200)  b = (100, 200)  print(a is b) False |
| 10 | a = (100, 200)  x = a  y = a  print(x is y) True |
| 11 | a = ‘str’  print(type(a)) <class ‘str’> |
| 12 | a = (1,2,3)  print(type(a)) <class ‘tuple’> |
| 13 | a = (1.23)  print(type(a)) <class ‘float’> |
| 14 | x = 7  y = “7”  print(x == y) False |
| 15 | x = 7  y = 7.0  print(x == y) True |
| 16 | x = 7  y = 7.0  print(x == y and not y == 7) False |
| 17 | x = True  y = False  print(x and y) False |
| 18 | x = True  y = False  print(x or y) True |
| 19 | x = True  y = False  print(x and not y) True |
| 20 | a = 3 + 6j  print(type(a)) <class ‘complex’> |
| 21 | a = “Hello”  b = “ World”  print(a + b) Hello World |
| 22 | a = “hi “  print(a\*3) hi hi hi |
| 23 | a = “hi “  b = 12  print(a + b) Error |
| 24 | a = 12  b = 13  print(a + b) 25 |
| 25 | x = “quality”  y = “quantity”  print(x>y) False |
| 26 | x = “quality”  y = “quali”  print(x>y) True |

Tuple

다음 코드의 결과값을 예상하라

|  |  |
| --- | --- |
| 1 | a = (100, 200)  print(a) (100, 200) |
| 2 | a = (100)  print(type(a)) <class ‘int’> |
| 3 | a = (100, 200, 300)  print(a[1]) 200 |
| 4 | a = (100, 200, 300)  a[1] = 0  print(a) Error |
| 5 | a = (10, 20, 30, 40, 50)  print(a[-1]) 50 |
| 6 | a = (10, 20, 30, 40, 50) print(a[5]) Error |
| 7 | a = (10, 3.5, ‘xy’)  x, y, z = a  print(y) 3.5 |
| 8 | a = (10, 3.5, ‘xy’)  x, y = a Error  print(y) |

If-statement

다음 코드의 결과값을 예상하라

|  |  |
| --- | --- |
| 1 | b = False  if b:  print(“Hi~”)  else:  print(“so sad…”) so sad… |
| 2 | b = None  if b:  print(“You got F”)  else:  print(“You got A+”) You got A+ |
| 3 | count = 0  if not count:  print(“not count”) not count  else:  print(“count”) |
| 4 | A = 90  B = 80  C = 70  score = 85  if score > A:  print(“A”)  if score > B:  print(“B”) B  if score > C:  print(“C”) C |
| 5 | A = 90  B = 80  C = 70  score = 85  if score > A:  print(“A”)  elif score > B:  print(“B”) B  elif score > C:  print(“C”) |

For-loop

다음 코드의 결과값을 예상하라

|  |  |
| --- | --- |
| 1 | for i in range(3):  print(i) 0\n1\n2 Note: \n 은 줄 바꿈 |
| 2 | for i in range(2, 5):  print(i) 2\n3\n4 |
| 3 | for i in range(3, 9, 2):  print(i\*\*2) 9\n25\n49 |
| 4 | for i in range(5, -1, -2):  print(i) 5\n3\n1 |
| 5 | for i in range(5):  print(i+3) 3\n4\n5\n6\n7  i += 2 |
| 6 | for i in (1,5,9):  print(i-1) 0\n4\n8 |

While-loop

다음 코드의 결과값을 예상하라

|  |  |
| --- | --- |
| 1 | n = 3  while(n>1):  print(n) 3\n2  n -= 1 |
| 2 | n = 3  while(n):  print(n) 3\n2\n1  n -= 1 |

Function

다음 코드의 결과값을 예상하라

|  |  |
| --- | --- |
| 1 | def f(s):  print(s)  f(‘hi’) hi |
| 2 | def f(s):  print(‘s’)  f(‘hi’) s |
| 3 | def f(s):  print(s)  print(f(‘hi’)) hi\nNone |
| 4 | def g(t):  m = t[0]  for i in t:  if i > m: m = i  return m  a = (0,1,2,3,6,5,4)  print(g(a)) 6 |
| 5 | def f(a):  if a == 0:  return 1  return f(a-1) \* a  print(f(5)) 120 |
| 6 | def f(a, n):  if n == 0:  return (a)  return (a, f(a, n-1))  print(f(3,3)) (3, (3, (3, 3))) |

Global Variable

다음 코드의 결과값을 예상하라

|  |  |
| --- | --- |
| 1 | a = 0  b = 0  def f(a):  a = 3  b = 3  f(a)  print(a) 0  print(b) 0 |
| 2 | a = 0  b = 0  def f(a):  global b  a = 3  b = 3  f(a)  print(a) 0  print(b) 3 |
| 3 | a = 0  b = 0  def f(a):  global a, b Error  a = 3  b = 3  f(a)  print(a)  print(b) |
| 4 | a = 0  b = 3  def f():  global b  b = a  f()  print(a) 0  print(b) 0 |
| 5 | x = True  y = True  z = 0  def set():  global z  z += 1  return True  x == y and set()  print(z) 1 |
| 6 | x = True  y = False  z = 0  def set():  global z  z += 1  return True  x == y and set()  print(z) 0 |
| 7 | x = True  y = True  z = 0  def set():  global z  z += 1  return True  x == y or set()  print(z) 0 |
| 8 | x = True  y = False  z = 0  def set():  global z  z += 1  return True  x == y or set()  print(z) 1 |