Begonnen am	Wednesday, 19. January 2022, 12:05
Status	Beendet
Beendet am	Wednesday, 19. January 2022, 12:19
Verbrauchte Zeit	14 Minuten 14 Sekunden
Punkte	25,00/25,00
Bewertung	**10,00** von 10,00 (**100**%)

Frage **1**

Vollständig

Nicht bewertet

By selecting "I confirm", I hereby declare under oath that I will work on this examination on my own without any help or any third-party assistance.
By selecting "I confirm", I understand that noncompliance results in invalidation of the assessment, whereby the invalidated examination will be added to the total number of retakes and noncompliance may result in further legal action.

a. I do not confirm

b. I confirm

Die richtige Antwort ist: I confirm

Frage **2**

Richtig

Erreichte Punkte 1,00 von 1,00

What is the advantage of using a `with-as` block when opening a file? Example:

```
with open("somefile.txt", "r") as f:
    print(f.read())
```

a. The file can be written to in any mode.

b. The file is automatically closed once the `with-as` block is left. ✔

c. Large files are opened faster.

d. The file is automatically created if it does not exist.

Die richtige Antwort ist: The file is automatically closed once the `with-as` block is left.

Frage **3**

Richtig

Erreichte Punkte 1,00 von 1,00

Which of the following statements is NOT correct?

- a. Subclasses cannot modify the behavior of methods of the base class. ✔
- b. Subclasses inherit attributes and methods from a base class.
- c. Subclasses are classes that derive from a base class.
- d. Every class is derived from Python's root class `object`.

Die richtige Antwort ist: Subclasses cannot modify the behavior of methods of the base class.

Frage **4**

Richtig

Erreichte Punkte 1,00 von 1,00

What does the code snippet `class Fish(Animal)` do?

- a. It creates a synonym for the class `Animal` which is called `Fish`.
- b. It defines a class with the name `Fish` which extends the class `Animal`. ✔
- c. It defines a class with the name `Fish` which serves a base class for the subclass `Animal`.
- d. It casts the class `Animal` to the class with the name `Fish`.

Die richtige Antwort ist: It defines a class with the name `Fish` which extends the class `Animal`.

Frage **5**

Richtig

Erreichte Punkte 1,00 von 1,00

Which functionality does the module `argparse` provide?

- a. It provides access to arguments passed to a Python function.
- b. It provides regular expressions to search for patterns in strings.
- c. It provides functions to parse CSV files.
- d. It provides easy and safe access to command line arguments. ✔

Die richtige Antwort ist: It provides easy and safe access to command line arguments.

Frage **6**

Richtig

Erreichte Punkte 1,00 von 1,00

`my_arr1` and `my_arr2` are numpy arrays with shape (3, 5). What would the line `my_arr1 * my_arr2` do?

- a. Create a reference to `my_arr1` and store it in `my_arr2`.
- b. Create a reference to `my_arr2` and store it in `my_arr1`.
- c. Multiply `my_arr1` and `my_arr2` element-wise and return a new array. ✔
- d. Fail because one cannot use this operation on objects of this type.

Die richtige Antwort ist: Multiply `my_arr1` and `my_arr2` element-wise and return a new array.

Frage **7**

Richtig

Erreichte Punkte 1,00 von 1,00

Which of the following statements is correct?

- a. Numpy arrays have a flexible shape and can be extended dynamically.
- b. Numpy arrays can only be 2-dimensional.
- c. Numpy arrays can never be 1-dimensional.
- d. Numpy arrays keep their initial fixed shape. ✔

Die richtige Antwort ist: Numpy arrays keep their initial fixed shape.

Frage **8**

Richtig

Erreichte Punkte 1,00 von 1,00

Which of the following statements is correct?

- a. Elements in a numpy array can have mixed datatypes.
- b. Elements in a numpy array can have mixed datatypes in different dimensions.
- c. Datatypes can only be numbers.
- d. Elements in a numpy array have the same datatype. ✔

Die richtige Antwort ist: Elements in a numpy array have the same datatype.

Frage **9**

Richtig

Erreichte Punkte 1,00 von 1,00

What are regular expressions (`re` module)?

- a. Regular expressions allow you to define classes in a regular/standardized fashion.
- b. Regular expressions allow you to check Python syntax and propose corrections if it does not fit the regular standards.
- c. Regular expressions allow you to search for flexible substrings/patterns in strings. ✔
- d. Regular expressions allow you to catch and handle Python errors.

Die richtige Antwort ist: Regular expressions allow you to search for flexible substrings/patterns in strings.

Frage **10**

Richtig

Erreichte Punkte 1,00 von 1,00

What shape does the numpy array `my_arr = np.array([0, 1, 2, 3, 4, 5]).reshape((-1, 3))` have?

- a. (1, 3).
- b. It would not have any shape because the reshape operation would fail.
- c. (6, 3).
- d. (2, 3). ✔

Die richtige Antwort ist: (2, 3).

Frage **11**

Richtig

Erreichte Punkte 1,00 von 1,00

Given the following code of a 2D vector, which of the four provided implementations of the special method `__eq__(self, other)` is correct under the assumption that two such vectors are considered equal if their attributes are equal?

```
class Vector2D:
    def __init__(self, v1, v2):
        self.v1 = v1
        self.v2 = v2
```

a.
```
def __eq__(self, other):
    if isinstance(other, Vector2D):
        return self.v1 == other.v1 and self.v2 == other.v2
    return NotImplemented
```
✔

b.
```
def __eq__(self, other):
    return self is other
```

c.
```
def __eq__(self, other):
    return self == other
```

d.
```
def __eq__(self, other):
    return self.v1 == other.v1 and self.v2 == other.v2
```

Die richtige Antwort ist:

```
def __eq__(self, other):
    if isinstance(other, Vector2D):
        return self.v1 == other.v1 and self.v2 == other.v2
    return NotImplemented
```

Frage **12**

Richtig

Erreichte Punkte 1,00 von 1,00

What does the special method `__eq__(self, other)` do?

a. It returns whether the `self` object is of the same class as the `other` object.

b. It returns whether the `self` object can be cast to the type of the `other` object.

c. It returns whether the `self` object references the same object as the `other` object.

d. It returns whether the `self` object is equal to the `other` object. ✔

Die richtige Antwort ist: It returns whether the `self` object is equal to the `other` object.

Frage **13**

Richtig

Erreichte Punkte 1,00 von 1,00

`my_arr` is a numpy array with shape (5, 4, 3, 2). What would the line `my_arr[0, 0]` return?

a. A numpy array with shape (5, 4).
b. A numpy array with shape (3, 2). ✔
c. A numpy array with shape (3,).
d. A numpy array with shape (1, 1, 3, 2).

Die richtige Antwort ist: A numpy array with shape (3, 2).

Frage **14**

Richtig

Erreichte Punkte 1,00 von 1,00

`my_arr` is a numpy array with shape (3, 5) and datatype int. What would the line `my_arr + 2` do?

a. Add a new element with value 2 at the end of `my_arr`.
b. Fail because one cannot use this operation on objects of this type.
c. Add the value 2 to each of the elements in `my_arr` and return a new array. ✔
d. Add a new element with value 2 at the start of `my_arr`.

Die richtige Antwort ist: Add the value 2 to each of the elements in `my_arr` and return a new array.

Frage **15**

Richtig

Erreichte Punkte 1,00 von 1,00

Regarding Python lists and numpy arrays, which of the following statements is correct?

a. Lists are equally fast (in terms of run-time performance) as arrays if the stored objects are all of the same type.
b. Lists can be transformed into arrays and vice versa. ✔
c. A list of integer numbers allocates the same amount of memory as a corresponding integer array.
d. Lists can be indexed exactly the same way as arrays.

Die richtige Antwort ist: Lists can be transformed into arrays and vice versa.

Frage **16**

Richtig

Erreichte Punkte 1,00 von 1,00

What does `os.path.join()` from the `os` module do?

- a. It combines multiple regular expressions.
- b. It registers the current Python session with the operating system.
- c. It joins multiple threads.
- d. It concatenates strings and places the correct path-separator for the used operating system between the strings (e.g., "/" on Linux or "\" on Windows). ✔

Die richtige Antwort ist: It concatenates strings and places the correct path-separator for the used operating system between the strings (e.g., "/" on Linux or "\" on Windows).

Frage **17**

Richtig

Erreichte Punkte 1,00 von 1,00

Which of the following modules can be used to call (potentially non-Python) programs?

- a. subprocess ✔
- b. re
- c. argparse
- d. numpy

Die richtige Antwort ist: subprocess

Frage **18**

Richtig

Erreichte Punkte 1,00 von 1,00

What is the difference between `open("somefile.txt", "r")` and `open("somefile.txt", "rb")`?

- a. "r" opens the file in read-only mode for text, "rb" in read-only mode for bytes. ✔
- b. "r" opens the file in read-only mode on Windows systems, "rb" opens the file in read-only mode on Unix-based systems.
- c. "r" opens the file in read-only mode for small files, "rb" in read-only mode for big files.
- d. There is no difference.

Die richtige Antwort ist: "r" opens the file in read-only mode for text, "rb" in read-only mode for bytes.

Frage **19**

Richtig

Erreichte Punkte 1,00 von 1,00

Assume the following class inheritance hierarchy (base class -> subclass): `Animal` -> `Fish` -> `Shark`. Further assume that there are three instances of each class: `my_animal`, `my_fish`, `my_shark`. Which of the boolean expressions evaluates to `False`?

a. `isinstance(my_shark, Fish)`
b. `isinstance(my_fish, Animal)`
c. `isinstance(my_fish, Shark)` ✔
d. `isinstance(my_animal, Animal)`

Die richtige Antwort ist: `isinstance(my_fish, Shark)`

Frage **20**

Richtig

Erreichte Punkte 1,00 von 1,00

What is the output when executing the following code?

```
class Animal:
    def __init__(self, name):
        self.name = name

a1 = Animal("Gabe")
a2 = Animal("Judy")
a3 = a2
a3.name = "Anna"

print(a1.name)
print(a2.name)
print(a3.name)
```

a. "Gabe", "Anna", "Anna". ✔
b. "Gabe", None, "Anna".
c. "Gabe", "Judy", "Judy".
d. "Gabe", "Judy", "Anna".

Die richtige Antwort ist: "Gabe", "Anna", "Anna".

Frage **21**

Richtig

Erreichte Punkte 1,00 von 1,00

What is the output when executing the following code?

```
class Animal:
    def eat(self):
        print("Animal eats")

class Fish(Animal):
    pass

class Shark(Fish):
    def eat(self):
        super().eat()
        print("Shark eats")

for a in [Animal(), Fish(), Shark()]:
    a.eat()
```

a. "Animal eats", "Animal eats", "Shark eats".
b. There will be an error because class `Fish` does not have a method `eat`.
c. "Animal eats", "Animal eats", "Shark eats", "Animal eats".
d. "Animal eats", "Animal eats", "Animal eats".
e. "Animal eats", "Animal eats", "Animal eats", "Shark eats". ✔

Die richtige Antwort ist: "Animal eats", "Animal eats", "Animal eats", "Shark eats".

Frage **22**

Richtig

Erreichte Punkte 1,00 von 1,00

Assume that `Animal` is a class that provides a method `bark(self)`. Assume that `animal_1` is an instance of the class `Animal`, created via `animal_1 = Animal()`. How can the method `bark` be invoked?

a. `bark(animal_1)`
b. `Animal.animal_1.bark()`
c. `animal_1.bark()` ✔
d. `animal_1.bark(animal_1)`

Die richtige Antwort ist: `animal_1.bark()`

Frage **23**

Richtig

Erreichte Punkte 1,00 von 1,00

What is the difference between object/instance attributes and class attributes?

- a. Object attributes belong to the object and exist for each such object. Class attributes belong to the class and exist only once. ✔
- b. Object attributes belong to the object and exist for each such object. Class attributes belong to the class and are copied for every created object.
- c. Object attributes belong to the object but exist only once and are shared across all objects. Class attributes belong to the class and exist only once.
- d. There is no difference, object attributes and class attributes are synonyms.

Die richtige Antwort ist: Object attributes belong to the object and exist for each such object. Class attributes belong to the class and exist only once.

Frage **24**

Richtig

Erreichte Punkte 1,00 von 1,00

Assume that `Animal` is a class. What does the following code do?

```
animal_1 = Animal()
animal_2 = Animal()
```

- a. Fail because you can only create a single instance of a class.
- b. Create two instances `animal_1` and `animal_2` from the class `Animal`. `animal_1` and `animal_2` are the same object.
- c. Create two new classes `animal_1` and `animal_2` from the class `Animal`.
- d. Create two instances `animal_1` and `animal_2` from the class `Animal`. `animal_1` and `animal_2` are different objects. ✔

Die richtige Antwort ist: Create two instances `animal_1` and `animal_2` from the class `Animal`. `animal_1` and `animal_2` are different objects.

Frage **25**

Richtig

Erreichte Punkte 1,00 von 1,00

How many elements does a numpy array with shape (2, 3, 2) hold?

- a. 12 ✔
- b. 3
- c. 7
- d. 2

Die richtige Antwort ist: 12

Frage **26**

Richtig

Erreichte Punkte 1,00 von 1,00

What is the main purpose of the `numpy` module?

- a. To provide access to syntax highlighting in Python.
- b. To provide access to exception handling in Python.
- c. To provide access to regular expressions in Python.
- d. To provide access to fast numerical computations in Python. ✔

Die richtige Antwort ist: To provide access to fast numerical computations in Python.

◄ Exam 1

Direkt zu: