

Informatics 2, 2nd midterm (2018-04-09)

1. (6p)	2. (3p)	3. (4p)	4. (3p)	5. (4p)	Σ (20p)
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The answers should fit next to the questions, if you used a separate paper let us know clearly!

1. Write a python class which represents triangles on the plane. The class should have three methods: (6 points)

constructor with three parameters, all of them a list of length two: the three vertices. If the vertices are on the same line then raise a `ValueError` exception.

repr function for printing. This should return the coordinates of the vertices with names ABC.

area this method should return the area of the triangle, a non-negative real number.

```
class Triangle(object):
    def __init__(self, A, B, C):

    def __repr__(self):

    def area(self):
```

If you wrote it correctly, the following should work:

```
>>> triangle = Triangle([0,0], [0,1], [1,0])
>>> print triangle
A(0,0), B(0,1), C(1,0)
>>> print triangle.area()
0.5
```

2. Theoretical questions (3 points)

a) How to handle (catch) an exception? Write an example!

b) What is the `super` function for? What does it return?

c) How to write a string center aligned with the width of 10 characters? For example the string "code" with three spaces on both sides.

3. Write an iterable class which iterates on a given list a given number of times! *(4 points)*

Its constructor should have two parameters: a list and a number. The number will be a non-negative integer.

```
class MyClass(object):
    def __init__(self, l, n):

    def __iter__(self):

    def next(self):
```

Example

```
for i in MyClass(["a", "b", "c"], 2):
    print i,
```

a b c a b c

4. What does the following functions do? *(3 points)*
Describe it and also give an example!

```
def f(s):
    return s.split(",")
```

```
def g(L):
    R = []
    for l in L:
        R.append(l.strip())
    return R
```

```
def h(L):
    for x in L:
        print "|" + x.ljust(8) + "|"
```

5. In the following code there are 4 mistakes, find those! *(4 points)*

```
class A(B):
    def __init__(self, x):
        self.x = x
    def f(x):
        return self.x + x
    def __repr__(self, x):
        return str(self.x)
```

```
class B(object)
    pass
```

Example usage:

```
a = A(0)
print a
a.f(5)
```