Beihang University
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Computer Science and Programming Homework December 14th, 2020

Task 1 ***class–matrix***

Feeling annoyed with doing matrix operation by hand? Don't worried! This week we will apply python to your linear algebra problem, which may free you from those tedious calculation.

1. Use the given code to create a class named matrix, which receives a parameter of list rows. The constructor and method `__str__` are already given to you. You can try different matrixs with different shape and print them to see the results.

2. Implement addition and subtraction between two matrix object. The return value of these two methods should be an object of the result matrix.

3. Implement transpose method which return an object of the transpose matrix.

4. Implement scalar_mul method which receives a scalar and return the product of matrix and the scalar. Tthe return value should be an object.

```
class matrix:
    def __init__(self,rows):
        self.rows=rows
        self.m=len(rows)
        self.n=len(rows[0])
    def __str__(self):
        return "\n".join(["|"+"\t".join(["%s"%(x*(abs(x)>1e-10))
        for x in row])+"|" for row in self.rows])+"\n"
    def __add__(self,other):
    #You need to write your code here to complete this method.

    def __sub__(self,other):
    #You need to write your code here to complete this method.

    def transpose(self):
    #You need to write your code here to complete this method.

    def scalar_mul(self,s):
    #You need to write your code here to complete this method.

a=matrix([[1,2,3],[4,5,6],[7,8,10]])
print(a)
```