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2024 fall, Complied by 李振硕、院系<信息管理系>

1. 题目

E07618: 病人排队

sorttings, http://cs101.openjudge.cn/practice/07618/

状态: Accepted

源代码

```
n=int(input())
data=[]
data1=[]
for i in range(n):
    num,age=map(str,input().split())
    age=int(age)
    if age>=60:
        data.append((num,age))
    else:
        data1.append((num,age))
data=sorted(data,key=lambda x:x[1],reverse=True)
for (x1,y1) in data:
    print(x1)
for (x2,y2) in data1:
    print(x2)
```

基本信息

#:	47009861
题目:	E07618
提交人:	24n2300093007
内存:	3640kB
时间:	27ms
语言:	Python3
提交时间:	2024-11-07 15:18:02

代码运行截图 <mark>（至少包含有"Accepted"）</mark>

E23555: 节省存储的矩阵乘法

implementation, matrices, http://cs101.openjudge.cn/practice/23555/

状态：Accepted

源代码

```
from collections import defaultdict

def multiply_matrices(n, m1_elements, m2_elements):
    result = defaultdict(int)
    matrix_a = defaultdict(lambda: defaultdict(int))
    matrix_b = defaultdict(lambda: defaultdict(int))

    for r, c, v in m1_elements:
        matrix_a[r][c] = v

    for r, c, v in m2_elements:
        matrix_b[r][c] = v

    for i in range(n):
        for k in range(n):
            if matrix_a[i][k] != 0:
                for j in range(n):
                    if matrix_b[k][j] != 0:
                        result[(i, j)] += matrix_a[i][k] * matrix_b[k][j

    non_zero_elements = sorted([(i, j, v) for (i, j), v in result.items

    return non_zero_elements

n, m1, m2 = map(int, input().split())
m1_elements = [tuple(map(int, input().split())) for _ in range(m1)]
m2_elements = [tuple(map(int, input().split())) for _ in range(m2)]

result = multiply_matrices(n, m1_elements, m2_elements)

for r, c, v in result:
    print(r, c, v)
```

基本信息

#: 47123852
题目: 23555
提交人: 24n2300093007
内存: 4032kB
时间: 30ms
语言: Python3
提交时间: 2024-11-12 22:28:01

代码运行截图 ==（至少包含有"Accepted"）==

M18182: 打怪兽

implementation/sortings/data structures, http://cs101.openjudge.cn/practice/18182/

思路：

状态：Accepted

源代码

```
def defeat_monster(nCases, cases):
    results = []
    for case in cases:
        n, m, b = case['n'], case['m'], case['b']
        skills = case['skills']

        skills_by_time = {}
        for ti, xi in skills:
            if ti not in skills_by_time:
                skills_by_time[ti] = []
            skills_by_time[ti].append(xi)

        current_hp = b
        for time in sorted(skills_by_time.keys()):
            skills_at_time = sorted(skills_by_time[time], reverse=True)
            max_skills = skills_at_time[:m]

            current_hp -= sum(max_skills)

            if current_hp <= 0:
                results.append(time)
                break
        else:
            results.append("alive")

    return results

nCases = int(input())
cases = []
for _ in range(nCases):
    n, m, b = map(int, input().split())
    skills = [tuple(map(int, input().split())) for _ in range(n)]
    cases.append({'n': n, 'm': m, 'b': b, 'skills': skills})

results = defeat_monster(nCases, cases)
for result in results:
    print(result)
```

基本信息

#: 47121822
题目: 18182
提交人: 24n2300093007
内存: 6208kB
时间: 80ms
语言: Python3
提交时间: 2024-11-12 20:53:15

代码运行截图 <mark>（至少包含有"Accepted"）</mark>

M28780: 零钱兑换3

dp, http://cs101.openjudge.cn/practice/28780/

思路：

代码：

状态: Accepted

源代码

```
def min_coins(n, m, coins):
    dp = [float('inf')] * (m + 1)
    dp[0] = 0

    for i in range(1, m + 1):
        for coin in coins:
            if i >= coin:
                dp[i] = min(dp[i], dp[i - coin] + 1)

    return dp[m] if dp[m] != float('inf') else -1

n, m = map(int, input().split())
coins = list(map(int, input().split()))

result = min_coins(n, m, coins)
print(result)
```

基本信息

#: 47122100
题目: 28780
提交人: 24n2300093007
内存: 8488kB
时间: 11040ms
语言: Python3
提交时间: 2024-11-12 21:02:05

代码运行截图 <mark>（至少包含有"Accepted"）</mark>

T12757: 阿尔法星人翻译官

implementation, http://cs101.openjudge.cn/practice/12757

状态：Accepted

源代码

```
def english_to_number(english_number):
    num_dict = {
        "zero": 0, "one": 1, "two": 2, "three": 3, "four": 4, "five": 5,
        "six": 6, "seven": 7, "eight": 8, "nine": 9, "ten": 10, "eleven": 11,
        "twelve": 12, "thirteen": 13, "fourteen": 14, "fifteen": 15,
        "sixteen": 16, "seventeen": 17, "eighteen": 18, "nineteen": 19,
        "twenty": 20, "thirty": 30, "forty": 40, "fifty": 50, "sixty": 60,
        "seventy": 70, "eighty": 80, "ninety": 90
    }
    magnitude_dict = {
        "hundred": 100, "thousand": 1000, "million": 1000000
    }

    words = english_number.split()
    result = 0
    current = 0
    negative = False

    for word in words:
        if word == "negative":
            negative = True
        elif word in num_dict:
            current += num_dict[word]
        elif word in magnitude_dict:
            if word == "hundred":
                current *= magnitude_dict[word]
            else:
                result += current * magnitude_dict[word]
                current = 0

    result += current
    if negative:
        result = -result

    return result

english_number = input().strip()
print(english_to_number(english_number))
```

基本信息

#: 47123735
题目: 12757
提交人: 24n2300093007
内存: 3696kB
时间: 26ms
语言: Python3
提交时间: 2024-11-12 22:20:52

代码运行截图 <mark>（至少包含有"Accepted"）</mark>

T16528: 充实的寒假生活

greedy/dp, cs10117 Final Exam, http://cs101.openjudge.cn/practice/16528/

思路：

代码：

状态：Accepted

源代码

```
def max_activities(n, activities):
    # 按活动结束时间排序
    activities.sort(key=lambda x: x[1])

    count = 0
    last_end_time = -1

    for start, end in activities:
        if start > last_end_time:
            count += 1
            last_end_time = end

    return count

n = int(input())
activities = [tuple(map(int, input().split())) for _ in range(n)]

result = max_activities(n, activities)
print(result)
```

基本信息

#: 47123825
题目: 16528
提交人: 24n2300093007
内存: 3896kB
时间: 34ms
语言: Python3
提交时间: 2024-11-12 22:26:46

代码运行截图 <mark>（至少包含有"Accepted"）</mark>

2. 学习总结和收获

这次月考感觉很难，考试的时候只做了一道题，感到需要从第五次作业开始复习。