

# 2020 Summer Week 6 Report

## 团队训练

2019 Multi-University Training Contest 2 task:8/8/12

## 本周推荐

### Pantw

TCO20 Parallel 3B: ShortBugPaths

- 分类：DP，计数
- 题意：一个  $n \times n$  的方格，跳  $j$  次，每次可以跳  $d_1$  步或  $d_2$ ... 或  $d_m$  步，问可能的路径条数  $n \leq 10^9, 0 \leq j \leq 10, 0 \leq d_i \leq 10$
- 解法：边界只对位于边界 100 格内的格子起作用（因为 100 格以外的不会撞上墙），那么对于较大的  $n$  我们可以直接按照  $n=300$  来做，然后直接复制填充计数即可。
- 评论：状态精简，小心 fst

TCO20 Parallel 3B: HorseTicket

- 分类：计数，DP
- 题意：给  $n$  个串，所有字符互不相同，每个串至多选一个字符，按任意顺序组成新串，问所有可能结果串中字典序第  $i$  个串的内容。
- 解法：枚举确定每一位，对给定前缀按照后半部分长度计数统计可能串数。
- 评论：python 写起来比较舒适

```
import math

class HorseTicket:

    def prefixSum(self, races, curpre):
        ret = 0
        race = []
        invalid = False
        for i in curpre:
            for j in curpre:
                if i != j:
                    for k in races:
                        if i in k and j in k:
                            invalid = True

        if invalid:
            return 0
```

```
for u in races:
    valid = True
    for i in u:
        if i in curpre:
            valid = False
    if valid:
        race.append(u)
races = race
nn = len(races)
c = [0 for i in range(nn + 1)]
c[0] = 1
for i in range(nn):
    for j in range(nn, 0, -1):
        c[j] += c[j - 1] * len(race[i])
for i in range(nn + 1):
    ret += math.factorial(i) * c[i]
return ret

def getTicket(self, races, index):
    # if not (type(races) is tuple and type(index) is int):
    #     return 'Error'
    total = self.prefixSum(races, '')
    if index >= total:
        return '!'

    chars = []
    for u in races:
        chars.extend([i for i in u])
    chars = sorted(list(set(chars)))

    ans = ''
    while index > 0:
        index -= 1
        for i in chars:
            if i in ans:
                continue
            prefix = ans + i
            tot = self.prefixSum(races, prefix)
            if tot > index:
                ans = prefix
                break
            else:
                index -= tot
    return ans
```

```
# print((() + () + tuple([233]) + () + tuple([666]))[1])
# print(type([2333, 4444, 2333]))
print(HorseTicket().getTicket(("B", "A"), 4))
print(HorseTicket().getTicket(("B", "A"), 6))
print(HorseTicket().getTicket(("ace", "bhg", "fdz"), 47))
```

```
print(HorseTicket().getTicket(("Top", "C0Der", "1s", "fun"), 673))
print(HorseTicket().getTicket(("q", "w", "e", "r", "t", "y", "u", "i", "o",
                                "p", "a", "s", "d", "f", "g", "h", "j", "k",
                                "l", "z", "x", "c", "v", "b", "n", "m"),
                                1000000000000000))
```

## Withinlover

### Gary

#### HDU6599

- 分类 PAM,manacher/hash
- 题意：给定字符串，一个字符串满足条件当且仅当本身是回文串且前一半也是回文串，求每个长度满足条件的串个数
- 解法：直接manacher求出每个点最长的回文串，建立pam时对pam上每个点存下他的长度lenth以及在原串中的位置pos p[am]上每个新点，通过lenth和pos和manacher求出的回文串长度来判断该点的回文串是否满足条件，最后遍历parent树，统计所有满足条件的节点
- 评论：不熟PAM开始还以为不能这么做

## 个人训练

### Pantw

#### 专题

无

#### 比赛

ABC175 TCO20R3B

#### 题目

AGC047E, ABC175D, ABC175E, TCO20R3B[300 / 500 / 1000]

## Withinlover

#### 专题

比赛

题目

**Gary**

专题

无

比赛

ABC175 □ TCO20R3B

题目

Educational Codeforces Round 93 C,D,E,F,G

ABC175 A,B,C,D,E

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Last update: 2020/08/21 15:20