

Assignment D

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院系：心理与认知科学学院

1、作业题目

1、20449：是否被 5 整除（40min）

<http://cs101.openjudge.cn/practice/20449/>

代码：

```
def binary_divisible_by_five(binary_string):
    result = ''
    num = 0
    for bit in binary_string:
        num = (num * 2 + int(bit)) % 5
        if num == 0:
            result += '1'
        else:
            result += '0'
    return result
```

```
binary_string = input().strip()
print(binary_divisible_by_five(binary_string))
```



OpenJudge 题目ID, 标题, 描述 22n2000092113

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题目 排名 状态 提问

#45035620提交状态 查看 提交 统

状态: **Accepted**

源代码

```
def binary_divisible_by_five(binary_string):
    result = ''
    num = 0
    for bit in binary_string:
        num = (num * 2 + int(bit)) % 5
        if num == 0:
            result += '1'
        else:
            result += '0'
    return result

binary_string = input().strip()
print(binary_divisible_by_five(binary_string))
```

基本信息

#:	45035620
题目:	20449
提交人:	22n2000092113
内存:	3596kB
时间:	23ms
语言:	Python3
提交时间:	2024-05-21 18:3

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2、01258：Agri-Net（1h20min）

<http://cs101.openjudge.cn/practice/01258/>

代码:

```
p = []

def P(x):
    if p[x] != x:
        p[x] = P(p[x])
    return p[x]

while True:
    try:
        n = int(input())
    except EOFError:
        break
    ans = 0
    M = [list(map(int, input().split())) for _ in range(n)]
    p = [i for i in range(n)]
    l = []
    for i in range(n):
        for j in range(n):
            if i != j:
                l.append((i, j, M[i][j]))
    l.sort(key=lambda x: x[2])
    for i, j, k in l:
        pi, pj = P(i), P(j)
        if pi != pj:
            p[pi] = pj
            ans += k
    print(ans)
```

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题目 排名 状态 提问

#45035632提交状态

查看 提交

状态: **Accepted**

源代码

```
p = []

def P(x):
    if p[x] != x:
        p[x] = P(p[x])
    return p[x]

while True:
    try:
        n = int(input())
    except EOFError:
        break
    ans = 0
    M = [list(map(int, input().split())) for _ in range(n)]
    p = [i for i in range(n)]
    l = []
    for i in range(n):
```

基本信息

#: 45035632

题目: 01258

提交人: 22n2000092113

内存: 8912kB

时间: 56ms

语言: Python3

提交时间: 2024-05-21 18:00

3、27635: 判断无向图是否连通有无回路(同 23163) (2h)

http://cs101.openjudge.cn/practice/27635/

代码:

```
n, m = list(map(int, input().split()))
edge = [[]for _ in range(n)]
for _ in range(m):
    a, b = list(map(int, input().split()))
    edge[a].append(b)
    edge[b].append(a)
cnt, flag = set(), False

def dfs(x, y):
    global cnt, flag
    cnt.add(x)
    for i in edge[x]:
        if i not in cnt:
            dfs(i, x)
        elif y != i:
            flag = True

for i in range(n):
    cnt.clear()
    dfs(i, -1)
    if len(cnt) == n:
        break
    if flag:
        break

print("connected:"+"yes" if len(cnt) == n else "no")
print("loop:"+"yes" if flag else 'no')
```

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题目 排名 状态 提问

#45035638提交状态

查看 提交

状态: **Accepted**

源代码

```
n, m = list(map(int, input().split()))
edge = [[]for _ in range(n)]
for _ in range(m):
    a, b = list(map(int, input().split()))
    edge[a].append(b)
    edge[b].append(a)
cnt, flag = set(), False

def dfs(x, y):
    global cnt, flag
    cnt.add(x)
    for i in edge[x]:
        if i not in cnt:
            dfs(i, x)
        elif y != i:
            flag = True
```

基本信息

#: 45035638

题目: 27635

提交人: 22n2000092113

内存: 7500kB

时间: 29ms

语言: Python3

提交时间: 2024-05-21 18:

4、27947: 动态中位数 (2h30min)

http://cs101.openjudge.cn/practice/27947/

代码:

```
import heapq

def dynamic_median(nums):
    min_heap = []
    max_heap = []

    median = []
    for i, num in enumerate(nums):
        if not max_heap or num <= -max_heap[0]:
            heapq.heappush(max_heap, -num)
        else:
            heapq.heappush(min_heap, num)

        if len(max_heap) - len(min_heap) > 1:
            heapq.heappush(min_heap, -heapq.heappop(max_heap))
        elif len(min_heap) > len(max_heap):
            heapq.heappush(max_heap, -heapq.heappop(min_heap))

        if i % 2 == 0:
            median.append(-max_heap[0])

    return median

T = int(input())
for _ in range(T):
    nums = list(map(int, input().split()))
    median = dynamic_median(nums)
    print(len(median))
    print(*median)
```

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题目 排名 状态 提问

#45038588提交状态 查看 提交

状态: Accepted

源代码

```
import heapq

def dynamic_median(nums):
    min_heap = []
    max_heap = []

    median = []
    for i, num in enumerate(nums):
        if not max_heap or num <= -max_heap[0]:
            heapq.heappush(max_heap, -num)
        else:
            heapq.heappush(min_heap, num)

        if len(max_heap) - len(min_heap) > 1:
            heapq.heappush(min_heap, -heapq.heappop(max_heap))
        elif len(min_heap) > len(max_heap):
            heapq.heappush(max_heap, -heapq.heappop(min_heap))
```

基本信息

#: 45038588

题目: 27947

提交人: 22n2000092113

内存: 10144kB

时间: 287ms

语言: Python3

提交时间: 2024-05-21 22:!

2. 学习总结和收获

机考感觉还没准备好啊啊啊啊，后面的作业大部分题目不参考答案根本就没有思路...