

# 分派任务实验报告

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## 1 实验源码

以下为实验源码：

```
from typing import List

table : List[List[int]] = [
    [2,10,9,7],
    [15,4,14,8],
    [13,14,16,11],
    [4,15,13,9]
]
ans : List[List[int]] = []
```

图 1.1: 宏定义

```
def func1(lb_now : int, lb_max : int, used_index : List[int], which : int) -> int:
    if which == 3:
        for i in range(4):
            if i not in used_index and lb_now - min(table[which]) + table[which][i] <= lb_max:
                lb_max = lb_now - min(table[which]) + table[which][i]
                used_index.append(i)
                ans.append(used_index)
        return lb_max
    else:
        for i in range(4):
            if i not in used_index:
                lb_now1 = lb_now - min(table[which]) + table[which][i]
                if lb_now1 < lb_max:
                    used_index1 = used_index.copy()
                    used_index1.append(i)
                    lb_max = func1(lb_now1, lb_max, used_index1, which+1)
        return lb_max
```

图 1.2: 关键函数

```
def main() -> None:
    lb = 0
    for i in range(4):
        lb += min(table[i])
    used_index = []
    cost = func1(lb, 100000, used_index, 0)
    lenth = len(ans)
    final_ans : List[int] = ans[lenth-1]
    for i in range(4):
        if final_ans[i] == 0:
            print(chr(ord('A')+1), " -> ", "I")
        if final_ans[i] == 1:
            print(chr(ord('A')+1), " -> ", "II")
        if final_ans[i] == 2:
            print(chr(ord('A')+1), " -> ", "III")
        if final_ans[i] == 3:
            print(chr(ord('A')+1), " -> ", "IV")
    print("min time is : ", cost)

if __name__ == '__main__':
    main()
```

图 1.3: 主函数

```
(base) lixiaoyi@lixiayideMacBook-Pro 算法设计作业 % python -u "/Users/lixiaoyi/Desktop/home  
network_code/算法设计作业/2111454_H10/2111454_H10_Q1.py"  
A -> III  
B -> II  
C -> IV  
D -> I  
min time is : 28  
(base) lixiaoyi@lixiayideMacBook-Pro 算法设计作业 %
```

图 2.1: 运行结果

## 2 实验结果

## 3 结论

成功解决问题。