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FINAL PROJECT

Board Game : San Juan

File :

project.c table.txt function.txt

Game information :

Player : 2~4人

Oder : 由總督開始(每回合總督會順時鐘交換)

Initial setting : 每個人會拿到四張手牌和一張磨坊建築(在桌面上)

End condition : 在桌面上的建築達到 12 張

Card Content : 總督卡*1 + 職業卡*5 + 一般建築*42 + 特殊建築*68

Card Usage :

[1]建築物 : 從手牌拿出來蓋

[2]錢 : 從手牌拿出來蓋

[3]貨物 : 從牌組拿來覆蓋在一般建築(或是禮拜堂)下

Difficulty :

可以選擇每個電腦玩家的難度

若選擇健忘版，可能會因為發呆而忘記行動喔！

Version :

若是沒時間玩這麼龐大的一局

可以在一開始切換成八張牌結束的模式

Special Action :

如果難以抉擇或是懶的行動，不妨叫電腦幫你決定

(僅限於建築師回合)

End condition :

當玩家桌上牌超過12張(或是8張)結束遊戲

Governor's Card :

拿著這張卡的人開始這個回合

回合結束前要結算每個人的手牌是否超過上限

Buildings' Card :

```
CN POSITION|BUILDING       |FUNCTION
---------------------------------------------------------------------------------
01 042~044 |Tower          |Hancards limit can upgrade to 12.
02 045~047 |Chapel         |You can put a handcard under your chapel every turn.
03 048~050 |Smithy         |You can paid less(-1).
04 051~053 |Poor house     |You can add a handcard, if your handcard <= one.
05 054~056 |Black market   |You can use product as handcard.
06 057~059 |Crane          |You can pay the spread of one of the buildings.
           |               |Replace it(old building & product will be remove).
07 060~062 |Carpenter      |Building a special building, you can add a handcard.
08 063~065 |Quarry         |Building a special building, you can paid less(-1).
09 066~068 |Well           |You can add a handcard, if you have products >= 2.
10 069~071 |Aquaduct       |You can produce again.
11 072~074 |Market stand   |You can add a handcard, if you had sell >= 2.
12 075~077 |Market hall    |You can add a handcard.
13 078~080 |Trading post   |You can sell again.
14 081~083 |Archive        |You can add card to handcard first then select.
15 084~086 |Prefecture     |You can choose 2 of %d to be your handcard.
16 087~089 |Gold mine      |You can pick 1 of 4 if the cost are all different.
17 090~092 |Library[0]     |You can paid less(-2).
           |Library[1]     |You can produce at most 3 products.
           |Library[2]     |You can sell at most 3 products.
           |Library[3]     |You choose 8 of 1 to be your handcard.
           |Library[4]     |You can add 2 handcards.
18 093~095 |Statue         |None
19 096~098 |Victory column |None
20 099~101 |Hero           |None
21 102~103 |Guild hall     |A production building get 2 more point.
22 104~105 |City hall      |A special building get 1 more point.
23 106~107 |Triumphal arch |A kind monument : +4 Two : +6 Three : +8
24 108~109 |Palace         |Plus 1/4 of the point.
```

Career Card :

每回合各玩家可以選一個與前面不同的職業卡並執行以下一種

[1]行動 ： 每個玩家都可以動作

[2]特權 ： 只有選擇這張職業卡的玩家可以執行

- Builder (建築師)
  $ normal   : Build a building. //用手牌付費蓋其中一張手牌為建築
  $ privilege : Build 2 building.
- Producer (製造商)
  $ normal   :Produce a product. //從牌庫抽一張牌覆蓋在下面
  $ privilege : Produce 2 product.
- Trader (商人)
  $ normal   : Produce a product. //將覆蓋在下面的牌賣出
  $ privilege : Produce 2 product.
- Councillor (議員)
  $ normal   : Pick 2 choose 1. //從牌庫抽牌當手牌
  $ privilege : Pick 5 choose 1.
- Prospector (礦工)
  $ normal   : Pick a card. //從牌庫抽牌當手牌
  $ privilege : Pick 2 card.

Structure Player :

```
typedef struct player
{
    char name[4]; //名字
    char role[15]; //職業
    int32_t handcard[12]; //手牌
    int32_t handcard_number; //手牌數
    int32_t table[12]; //桌上建築
    int32_t table_number; //桌上建築數
    int32_t type[12]; //桌上建築代號
    int32_t product[12]; // 貨品內容
    int32_t product_position[12]; //貨品位置
    int32_t product_number; //貨品數
    int32_t limit; //手牌限制數
    int32_t sell; //賣出貨品數
    int32_t n; //角色位置
    int32_t church[50]; //教堂下覆蓋內容
    int32_t church_number; //教堂下覆蓋數
    int32_t memory[5]; //暫存 (用於Councillor)
    int32_t memory_number; //暫存數
     bool lib; //圖書館在這一回合是否使用過
     bool difficulty; //電腦難度
    int32_t score; //分數
} Player;
```

Function introduce :

```
<01> Type( Player *ip ) //判斷卡牌代碼
<02> Check_type( int32_t x ) //把桌上建築卡牌代碼寫進 ip->type陣列
<03> Check_input( bool condition ) //判斷輸入是否合法
<04> Introduce() //介紹
<05> Shuffle( int32_t number ) //第一次洗牌+初始化
<06> Shuffle_again( int32_t last ) //把棄牌區重新洗牌
<07> Print_surface( const Player ip[4] ) //輸出介面
<08> Name( int32_t number ) //取名
<09> Q() //是否需要資訊
<10> Change( Player *ip , int32_t count , int32_t option ) //刪除卡牌

********************************************************************************
<11> normal_build( Player *ip ) //正常蓋法，包含於Your_Builder
<12> crane_build( Player *ip ) //起重機蓋法，包含於Your_Builder
<13> Your_Builder( Player *ip ) //建築師回合行動，包含於Your_behave
<14> Your_Producer( Player *ip ) //生產者回合行動，包含於Your_behave
<15> Your_Trader( Player *ip ) //商人回合行動，包含於Your_behave
<16> Your_Councillor( Player *ip , bool option ) //議員回合行動，包含於Your_behave
<17> Your_Prospector( Player *ip , int32_t who ) //礦工回合行動，包含於Your_behave

********************************************************************************
<19> Other_Builder( Player *ip ) //建築師回合行動，包含於Other_behave
<20> Other_Producer( Player *ip ) //生產者回合行，包含於Other_behave動
<21> Other_Trader( Player *ip ) //商人回合行動，包含於Other_behave
<22> Other_Councillor( Player *ip , int32_t who ) //議員回合行動，包含於Other_behave
<23> Other_Prospector( Player *ip , int32_t who ) //礦工回合行動，包含於Other_behave

********************************************************************************
<24> Your_behave( Player *ip , int32_t choose , Player *who , Player *Governor )
//不為自己選職業時自己的行動
<25> Other_behave( Player *ip , int32_t choose , Player *who , Player *Governor )
//不為電腦角色自己選角色時電腦的行動
<26> Check_for_every_turn( Player *ip , int32_t number ) //回合檢查
<27> Your_Role( Player *ip ) //自己選職業時自己的行動
<28> Other_Role( Player *ip ) //電腦角色自己選角色時電腦的行動
<29> Champion( Player *ip ) //算分並回傳最高分
<30> Champion( Player *ip ) //如果有重複最高分則加上手牌數跟貨品數
```

Interface :

```
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Player: You                   |Player: Com1
Role playcards:               |Role playcards:
Governor: 0                   |Governor: 1
Handcards:                    |Handcards:
053 044 087 078               |034 058 070 066
                              |
Table:                        |Table:
000                           |001
                              |
Product position:             |Product position:
                              |
                              |
Under the Chapel: 000         |Under the Chapel: 000
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Builder Producer Trader Councillor Prospector
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Player: Com2                  |Player: Com3
Role playcards:               |Role playcards:
Governor: 0                   |Governor: 0
Handcards:                    |Handcards:
096 055 047 101               |085 083 082 089
                              |
Table:                        |Table:
002                           |003
                              |
Product position:             |Product position:
                              |
                              |
Under the Chapel: 000         |Under the Chapel: 000
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

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