

第一題：

程式碼：

```
#include <bits/stdc++.h>
using namespace std;
int columscount[13];
void shuffle( int wDeck[][ 13 ] );
void deal( const int wDeck[][ 13 ], const char *wFace[],
           const char *wSuit[] );
int determinepair();//判斷卡組類別的函數
int main()
{
    const char *suit[ 4 ] = { "Hearts", "Diamonds", "Clubs",
    "Spades" };
    const char *face[ 13 ] =
        { "Ace", "Deuce", "Three", "Four",
          "Five", "Six", "Seven", "Eight",
          "Nine", "Ten", "Jack", "Queen", "King" };
    int deck[ 4 ][ 13 ] = { 0 };
    srand( time( 0 ) );
    shuffle( deck );
    deal( deck, face, suit );
    return 0;
}
void shuffle( int wDeck[][ 13 ] )
{
    int row;
    int column;
    int card;
    for ( card = 1; card <= 52; card++ ) {
        do {
            row = rand() % 4;
            column = rand() % 13;
        } while( wDeck[ row ][ column ] != 0 );
        wDeck[ row ][ column ] = card;
    }
}
void deal( const int wDeck[][ 13 ], const char *wFace[],
           const char *wSuit[] )
{
    int card;
    int row;
    int column;
    int count=0,pickCard[5];
    bool beenused[52];
    for (int i = 0; i < 52; i++)
    {
        beenused[i]=0;
```

```

}
while(count<5){
    int tmp=rand()%52;
    if(beenused[tmp]) continue;
    else{
        pickCard[count]=tmp;
        count++;
    }
}
int cardplace[2][5]; //0-row,1-column
for ( card = 0; card < 5; card++ ) {
    for ( row = 0; row <= 3; row++ ) {
        for ( column = 0; column <= 12; column++ ) {
            if ( wDeck[ row ][ column ] == pickCard[card] )
{
                printf( "%5s of %-8s%c", wFace[ column ],
wSuit[ row ], '\n' );
                cardplace[0][card]=row;
                cardplace[1][card]=column;
            }
        }
    }
}
for(int i=0;i<13;i++){
    columscount[i]=0;
}
for(int i=0;i<5;i++){
    columscount[cardplace[1][i]]++;
}
cout << "The types of 5-card poker hands are : ";
switch(determinepair()){
    case 1:
        cout << "nothing:(\n";
        break;
    case 2:
        cout << "a pair\n";
        break;
    case 3:
        cout << "three of a kind\n";
        break;
    case 4:
        cout << "four of a kind\n";
        break;
    case 5:
        cout << "a flush\n";
        break;
    case 6:
        cout << "a straight\n";

```

```

        break;
    case 7:
        cout << "two pairs\n";
        break;
    default:
        break;
    }
} /* end function deal */
int determinepair(){//作業主要部分 (判斷卡組類別)
    int maxn=0;
    for(int i=0;i<13;i++){
        maxn=max(maxn,columscount[i]);
    }
    int count=0;
    bool checkstraight=1,temp=0;
    if(maxn==1){
        for(int i=0;i<13;i++){
            if(!temp){
                if(columscount[i]!=0){
                    temp=1;
                    count++;
                }
            }
            else{
                if(columscount[i]==0){
                    break;
                }
                else{
                    count++;
                }
            }
        }
        if(count==5) return 6;
    }
    else if(maxn==2){
        int countpair=0;
        for(int i=0;i<13;i++){
            if(columscount[i]==2){
                countpair++;
            }
        }
        if(countpair==2) return 7;
    }
    return maxn;
}

```

結果：

(a. A pair)

```
bentley@BentleydeMacBook-Pro:~/Desktop/大一程設作業 ㄟ⌘1
bentley@BentleydeMacBook-Pro > ~/Desktop/大一程設作業 > ㄏ main ● ? > ./a.out
Eight of Clubs
Nine of Clubs
Five of Diamonds
Five of Hearts
The types of 5-card poker hands are : a pair
bentley@BentleydeMacBook-Pro > ~/Desktop/大一程設作業 > ㄏ main ● ? > | > ✓
```

(b. Two pairs)

```
bentley@BentleydeMacBook-Pro:~/Desktop/大一程設作業 ㄟ⌘1
Last login: Sun Dec 12 14:07:32 on ttys001
bentley@BentleydeMacBook-Pro > ~ > cd Desktop/大一程設作業 > ✓
bentley@BentleydeMacBook-Pro > ~/Desktop/大一程設作業 > ㄏ main ● ? > g++ HW7-1.
cpp
bentley@BentleydeMacBook-Pro > ~/Desktop/大一程設作業 > ㄏ main ● ? > ./a.out
Three of Diamonds
Deuce of Diamonds
Deuce of Diamonds
Nine of Diamonds
Nine of Clubs
The types of 5-card poker hands are : two pairs
bentley@BentleydeMacBook-Pro > ~/Desktop/大一程設作業 > ㄏ main ● ? > | > ✓
```

(c. Three of a kind)

```
bentley@BentleydeMacBook-Pro:~/Desktop/大一程設作業 ㄟ⌘1
bentley@BentleydeMacBook-Pro > ~/Desktop/大一程設作業 > ↵ main ● ? > ./a.out
Eight of Clubs
Eight of Hearts
Eight of Diamonds
Three of Spades
Deuce of Spades
The types of 5-card poker hands are : three of a kind
bentley@BentleydeMacBook-Pro > ~/Desktop/大一程設作業 > ↵ main ● ? > ㄟ✓
```

(d. Four of a kind)

```
bentley@BentleydeMacBook-Pro:~/Desktop/大一程設作業 ㄟ⌘1
bentley@BentleydeMacBook-Pro > ~/Desktop/大一程設作業 > ↵ main ● ? > ./a.out
Five of Spades
Five of Diamonds
Five of Spades
Five of Hearts
Jack of Hearts
The types of 5-card poker hands are : four of a kind
bentley@BentleydeMacBook-Pro > ~/Desktop/大一程設作業 > ↵ main ● ? > ㄟ✓
```

(e. A flush)

```
bentley@BentleydeMacBook-Pro:~/Desktop/大一程設作業
bentley@BentleydeMacBook-Pro > ~/Desktop/大一程設作業 > ? main ● ? > ./a.out
Seven of Spades
Seven of Clubs
Seven of Diamonds
Seven of Clubs
Seven of Hearts
The types of 5-card poker hands are : a flush
bentley@BentleydeMacBook-Pro > ~/Desktop/大一程設作業 > ? main ● ? > █ > ✓
```

(f. A straight)

```
bentley@BentleydeMacBook-Pro:~/Desktop/大一程設作業
bentley@BentleydeMacBook-Pro > ~/Desktop/大一程設作業 > ? main ● ? > ./a.out
Three of Spades
Five of Diamonds
Four of Spades
Seven of Hearts
Six of Hearts
The types of 5-card poker hands are : a straight
bentley@BentleydeMacBook-Pro > ~/Desktop/大一程設作業 > ? main ● ? > █ > ✓
```