

# C语言实现简单五子棋

这是一个用C语言实现的控制台小游戏——五子棋，棋盘大小和获胜棋子数目是用宏定义的，可以自定义，所以可以轻松改为三子棋、六子棋等等。此游戏设定为人机对战（PVE），电脑走棋是随机的。

## 编译环境：VS2015

此程序采用多文件编译，共有三个文件，一个game.h头文件，一个game.c文件和一个main.c文件，代码分别如下：

### game.h

这里是一些数据和函数的声明

```
1  #ifndef _GAME_H_
2  #define _GAME_H_
3
4  #define _BOARD_ 10      //棋盘大小
5  #define _PIECE_ 5      //获胜所需要连起来的棋子个数
6
7  typedef struct Board{
8      char show[_BOARD][_BOARD];    //棋盘字符数组
9      char Pc;        //电脑使用的棋子
10     char Player;     //棋手使用的棋子
11 }Brd, *pBrd;        //Brd:五子棋  pBrd:五子棋指针
12
13 void init(pBrd B);
14 void PrintBrd(const pBrd B);
15 void Pcrand(pBrd B);
16 int Player(pBrd B);
17 int judge(pBrd B, int n);
18 void menu(pBrd B);
19
20 #endif // !_GAME_H_
```

### game.c

这里是函数的具体实现

```
1  #include<stdio.h>
2  #include<stdlib.h>
3  #include<time.h>
4  #include "game.h"
5
6  void init(pBrd B)
7  {
8      int i, j;
9      for (i = 0; i < _BOARD_; i++)
10     {
11         for (j = 0; j < _BOARD_; j++)
12         {
13             B->show[i][j] = ' ';
14         }
15     }
16     B->Pc = '@';
17     B->Player = '*';
18 }
19
20 void PrintBrd(const pBrd B)
21 {
22     int i, j;
23     printf(" ");
24     for (i = 0; i < _BOARD_; i++)
25     {
26         printf("   %d", i + 1);
27     }
28     printf("\n");
29     for (i = 0; i < _BOARD_; i++)
30     {
31         for (j = 0; j < _BOARD_; j++)
32         {
33             if (j == 0)printf(" %d|", i + 1);
34             printf(" %c |", B->show[i][j]);
35         }
36         if (i == 0)printf("      Player: *");
37         if (i == 1)printf("      AI: @");
38         printf("\n\n");
39     }
40 }
41
42 void Pcrand(pBrd B)
43 {
44     int i, j;
45     srand((unsigned int)time((NULL)));
```

```

46     int n = rand()%(_BOARD*_BOARD_);
47     for (i = 0; i < _BOARD_; i++)
48     {
49         for (j = 0; j < _BOARD_; j++)
50         {
51             if (n > 0)n--;
52             else if (n == 0 && B->show[i][j] == ' ')
53             {
54                 B->show[i][j] = B->Pc;
55                 return;
56             }
57         }
58     }
59 }
60
61 int Player(pBrd B)
62 {
63     int i, j;
64     printf("请输入落子位置:\n");
65     printf("行:>");
66     scanf("%d", &i);
67     printf("列:>");
68     scanf("%d", &j);
69     i--;
70     j--;
71     if (B->show[i][j] != ' ' || i >= _BOARD_ || j >= _BOARD_ || i < 0 ||
72     j < 0)
73     {
74         printf("请输入正确的位置! \n");
75         system("pause");
76         return 0;
77     }
78     B->show[i][j] = B->Player;
79     return 1;
80 }
81
82 int judge(pBrd B, int n)
83 {
84     char s;
85     int c = 0;
86     int i, j, sum = 0;
87     if (n == 1)s = B->Player;
88     else if (n == 2) s = B->Pc;
89
90     for (i = 0; i < _BOARD_; i++)
91     {
92         sum = 0;
93         for (j = 0; j < _BOARD_; j++)

```

```

93     {
94         if (B->show[i][j] == s)sum++;
95         else sum = 0;
96         if (sum == _PIECE_)return 1;
97     }
98
99 }
100
101 for (j = 0; j < _BOARD_; j++)
102 {
103     sum = 0;
104     for (i = 0; i < _BOARD_; i++)
105     {
106         if (B->show[i][j] == s)sum++;
107         else sum = 0;
108         if (sum == _PIECE_)return 1;
109     }
110 }
111
112 sum = 0;
113 for (i = 0, j = 0; i < _BOARD_; i++, j++)
114 {
115     if (B->show[i][j] == s)sum++;
116     else sum = 0;
117     if (sum == _PIECE_)return 1;
118 }
119
120 sum = 0;
121 for (i = 0, j = _BOARD_ - 1; i < _BOARD_; i++, j--)
122 {
123     if (B->show[i][j] == s)sum++;
124     else sum = 0;
125     if (sum == _PIECE_)return 1;
126 }
127
128 return 0;
129 }
130
131 void menu(pBrd B)
132 {
133     int c,n = 1;
134     printf("*****\n");
135     printf("***** 1.play ** 0.exit *****\n");
136     printf("*****\n");
137     printf("请输入选项:>");
138     scanf("%d", &c);
139     while (c)
140     {

```

```

141         system("cls");
142         if (n == 1)
143         {
144             PrintBrd(B);
145             if(Player(B))n=2;
146             else continue;
147         }
148         else
149         {
150             Pcrand(B);
151             n = 1;
152         }
153         if (judge(B, n))
154         {
155             PrintBrd(B);
156             if (n == 1)printf("Old Fe 666!\n");
157             else printf("请大侠重新来过\n");
158             break;
159         }
160     }
161 }

```

## main.c

### 程序入口

```

1  #include"game.h"
2
3  int main()
4  {
5      Brd B;
6      init(&B);
7      menu(&B);
8      printf("Thanks for playing my game.\n");
9      return 0;
10 }

```

### 运行截图

```

*****
***** 1.play ** 0.exit *****
*****
请输入选项:>

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```

```
  1  2  3  4  5  6  7  8  9 10
1|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
2|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
3|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
4|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
5|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
6|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
7|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
8|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
9|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
10|  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

请输入落子位置:
行:>_

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```

```
  1  2  3  4  5  6  7  8  9 10
1| * |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
2|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
3|   |   | * |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
4|   | @ |   | * |   |   |   |   |   |   | @ |   |   |   |   |   |   |   |   |   |
5|   | @ |   |   | * | @ |   |   |   |   |   |   |   |   |   |   |   |   |   |
6|   | @ |   |   |   | * |   |   |   |   |   |   |   |   |   |   |   |   |   |
7|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
8|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
9|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
10|  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

请输入落子位置:
行:>_

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```

	1	2	3	4	5	6	7	8	9	10	
1	*										Player: *
2											AI: @
3			*								
4		@		*					@		
5		@			*	@					
6		@				*					
7							*				
8											
9						@					
10											

Old Fe 666!  
 Thanks for playing my game.  
 请按任意键继续. . .

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