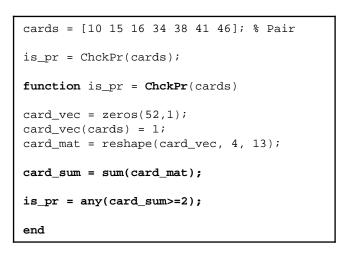
# **Baseline Code**

1C	2C	3C	4C	5C	6C	7C	8C	9C	10C	11C	12C	13C
1	5	9	13	17	21	25	29	33	37	41	45	49
1D	2D	3D	4D	5D	6D	7D	8D	9D	10D	11D	12D	13D
2	6	10	14	18	22	26	30	34	38	42	46	50
1Н	2H	3H	4Н	5H	6Н	7H	8H	9Н	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
1\$	25	3S	<b>4</b> S	58	68	7\$	85	9\$	108	115	125	135
4	8	12	16	20	24	28	32	36	40	44	48	52

```
cards = [10 15 16 34 38 41 46]; % Pair
card_vec = zeros(52,1);
card_vec(cards) = 1;
card_mat = reshape(card_vec, 4, 13);
```

# **Pair**

1C	2C	3C	4C	5C	6C	7C	8C	9C	10C	11C	12C	13C
1	5	9	13	17	21	25	29	33	37	41	45	49
1D	2D	3D	4D	5D	6D	7D	8D	9D	10D	11D	12D	13D
2	6	10	14	18	22	26	30	34	38	42	46	50
1H	2Н	3H	4Н	5H	6Н	7H	8Н	9Н	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
1\$	25	3S	<b>4</b> S	58	68	7\$	85	9\$	108	115	125	135
4	8	12	16	20	24	28	32	36	40	44	48	52



#### card\_sum

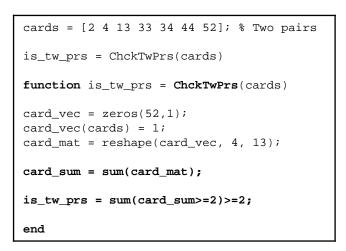
	0	0	1	2	0	0	0	0	1	1	1	1	0
ı				l									

```
card_sum >= 2
```

	0	0	0	1	0	0	0	0	0	0	0	0	0
ı													

### **Two Pair**

1C	2C	3C	4C	5C	6C	7C	8C	9C	10C	11C	12C	13C
1	5	9	13	17	21	25	29	33	37	41	45	49
1D	2D	3D	4D	5D	6D	7D	8D	9D	10D	11D	12D	13D
2	6	10	14	18	22	26	30	34	38	42	46	50
1H	2Н	3Н	4Н	5H	6Н	7H	8H	9Н	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
18	25	3S	4\$	58	68	<b>7</b> S	85	9\$	105	115	125	135
4	8	12	16	20	24	28	32	36	40	44	48	52



#### card\_sum

2	0	0	1	0	0	0	0	2	0	1	0	1
l												i

### card\_sum >= 2

	1	0	0	0	0	0	0	0	1	0	0	0	0
1													

### sum(card\_sum > 2)

2

# Three of a Kind

1C	2C	3C	4C	5C	6C	7C	8C	9C	10C	11C	12C	13C
1	5	9	13	17	21	25	29	33	37	41	45	49
1D	2D	3D	4D	5D	6D	7D	8D	9D	10D	11D	12D	13D
2	6	10	14	18	22	26	30	34	38	42	46	50
1Н	2H	3H	4Н	5H	6Н	7H	8H	9Н	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
1\$	2\$	3S	4\$	58	68	7\$	85	9\$	108	115	125	135
4	8	12	16	20	24	28	32	36	40	44	48	52

### card\_sum

0	1	0	3	0	1	0	0	1	0	1	0	0

```
card_sum >= 3

0 0 0 1 0 0 0 0 0 0 0 0 0
```

```
cards = [6 13 14 15 24 33 44];
% Three of a Kind
is_thr_knd = ChckThrKnd(cards)
function is_thr_knd = ChckThrKnd(cards)
card\_vec = zeros(52,1);
card_vec(cards) = 1;
card_mat = reshape(card_vec, 4, 13);
card_sum = sum(card_mat);
is_thr_knd = any(card_sum>=3);
end
```

# Four of a Kind

1C	2C	3C	4C	5C	6C	7C	8C	9C	10C	11C	12C	13C
1	5	9	13	17	21	25	29	33	37	41	45	49
1D	2D	3D	4D	5D	6D	7D	8D	9D	10D	11D	12D	13D
2	6	10	14	18	22	26	30	34	38	42	46	50
1H	2H	3H	4Н	5H	6Н	7H	8H	9Н	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
1\$	25	3S	48	58	68	7\$	88	9\$	108	115	125	135
4	8	12	16	20	24	28	32	36	40	44	48	52

#### card\_sum

```
card_sum == 4

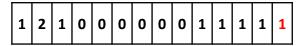
0 0 0 0 1 0 0 0 0 0 0 0 0
```

```
cards = [6 11 17 18 19 20 37];
% Four of a Kind
is_fr_knd = ChckFrKnd(cards)
function is_fr_knd = ChckFrKnd(cards)
card_vec = zeros(52,1);
card_vec(cards) = 1;
card_mat = reshape(card_vec, 4, 13);
card_sum = sum(card_mat);
is_fr_knd = any(card_sum==4);
end
```

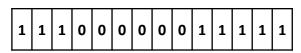
# Straight

1C	2C	3C	4C	5C	6C	7C	8C	9C	10C	11C	12C	13C
1	5	9	13	17	21	25	29	33	37	41	45	49
1D	2D	3D	4D	5D	6D	7D	8D	9D	10D	11D	12D	13D
2	6	10	14	18	22	26	30	34	38	42	46	50
1H	2Н	3H	4Н	5H	6Н	7H	8Н	9Н	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
15	2\$	3S	4\$	58	68	7\$	85	9\$	105	115	125	135
4	8	12	16	20	24	28	32	36	40	44	48	52

### card\_sum

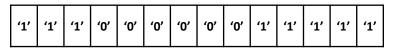


### lg\_vec



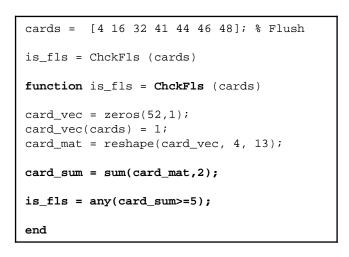
```
cards = [3 5 8 40 44 48 50]; % Straight
is_str = ChckFrKnd(cards)
function is_str = ChckStr(cards)
card_vec = zeros(52,1);
card_vec(cards) = 1;
card_mat = reshape(card_vec, 4, 13);
card mat = [card mat card mat(:,1)];
card_sum = sum(card_mat);
lg_vec = (card_sum~=0);
is_str = contains(char(lg_vec + '0'), ...
'11111');
end
```

## char(lg\_vec + `0')

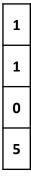


# Flush

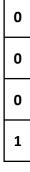
1C	2C	3C	4C	5C	6C	7C	8C	9C	10C	11C	12C	13C
1	5	9	13	17	21	25	29	33	37	41	45	49
1D	2D	3D	4D	5D	6D	7D	8D	9D	10D	11D	12D	13D
2	6	10	14	18	22	26	30	34	38	42	46	50
1H	2Н	3Н	4Н	5H	6Н	7H	8Н	9Н	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
1\$	25	3S	<b>4</b> S	58	68	7\$	85	9\$	108	115	125	135
4	8	12	16	20	24	28	32	36	40	44	48	52



card\_sum



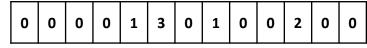
is\_fls



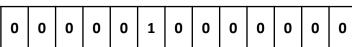
# **Full House**

1C	2C	3C	4C	5C	6C	7C	8C	9C	10C	11C	12C	13C
1	5	9	13	17	21	25	29	33	37	41	45	49
1D	2D	3D	4D	5D	6D	7D	8D	9D	10D	11D	12D	13D
2	6	10	14	18	22	26	30	34	38	42	46	50
1H	2Н	3Н	4Н	5H	6Н	7H	8H	9Н	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
1\$	25	3S	4\$	58	68	7\$	88	9\$	108	115	125	135
4	8	12	16	20	24	28	32	36	40	44	48	52

## card\_sum

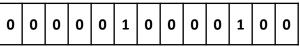


```
card_sum >= 3
```



```
cards = [18 21 22 23 29 41 43]
% Full House
is fll hs = ChckFllHs (cards)
function is fll hs = ChckFllHs (cards)
card_vec = zeros(52,1);
card vec(cards) = 1;
card_mat = reshape(card_vec, 4, 13);
card_sum = sum(card_mat,2);
cond1 = any(card sum>=3);
cond2 = sum(card_sum >=2) >=2);
is_fll_hs = and(cond1, cond2);
end
```

# card\_sum >= 2



sum(card\_sum >= 2)



# **Straight Flush**

1C	2C	3C	4C	5C	6C	7C	8C	9C	10C	11C	12C	13C
1	5	9	13	17	21	25	29	33	37	41	45	49
1D	2D	3D	4D	5D	6D	7D	8D	9D	10D	11D	12D	13D
2	6	10	14	18	22	26	30	34	38	42	46	50
1Н	2H	3H	4Н	5H	6Н	7H	8H	9Н	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
1\$	2\$	3S	48	58	68	7\$	85	9\$	108	115	125	135
4	8	12	16	20	24	28	32	36	40	44	48	52

```
rem(cards, 4)==0 rem(cards, 4)==3
```

```
rem(cards, 4)==1

0 0 0 1 0 0 0
```

```
1 1 1 0 1 1 1
```

rem(cards, 4) == 2

```
cards = [2\ 14\ 18\ 22\ 25\ 26\ 30];
% Straight Flush
is str fls = ChckStrFls(cards)
function is_str_fls = ChckStrFls(cards)
is str fls = false;
for ii=0:3
    test cards = cards(rem(cards, 4)==ii);
    if ChckStr(test_cards)
       is_str_fls = true;
      break;
    end
end
function is_str = ChckStr(cards)
card\ vec = zeros(52,1);
card vec(cards) = 1;
card_mat = reshape(card_vec, 4, 13);
card mat = [card mat card mat(:,1)];
card sum = sum(card mat);
lg_vec = (card_sum~=0);
is str = contains(char(lg vec + '0'), ...
'11111');
end
```

# **Royal Straight Flush**

1C	2C	3C	4C	5C	6C	7C	8C	9C	10C	11C	12C	13C
1	5	9	13	17	21	25	29	33	37	41	45	49
1D	2D	3D	4D	5D	6D	7D	8D	9D	10D	11D	12D	13D
2	6	10	14	18	22	26	30	34	38	42	46	50
1H	2H	3H	4H	5H	6Н	7H	8H	9Н	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
15	25	35	48	58	6S	<b>7</b> S	88	98	105	115	125	135
4	8	12	16	20	24	28	32	36	40	44	48	52

.c	10C	11C	12C	13C
1	37	41	45	49
D	10D	11D	12D	13D
2	38	42	46	50
	10H	11H	12H	13H
H				1311
.H 3	39	43	47	51
3	39	43	47	51

```
cards = [2\ 21\ 38\ 42\ 46\ 49\ 50];
% Royal Straight Flush
is_ryl_str_fls = ChckRylFls(cards)
function is_ryl_str_fls = ChckRylFls(cards)
card_mat = zeros(4, 13);
card vec(cards) = 1;
card_mat = reshape(card_vec, 4, 13);
card mat(:,2:9) = 0;
is_ryl_str_fls = ChckFls(find(card_mat(:)));
end
function is fls = ChckFls (cards)
card_vec = zeros(52,1);
card_vec(cards) = 1;
card_mat = reshape(card_vec, 4, 13);
card_sum = sum(card_mat,2);
is_fls = any(card_sum>=5);
end
```