

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
1H	2H	3H	4H	5H	6H	7H	8H	9H	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
1S	2S	3S	4S	5S	6S	7S	8S	9S	10S	11S	12S	13S
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	2H	3H	4H	5H	6H	7H	8H	9H	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
1S	2S	3S	4S	5S	6S	7S	8S	9S	10S	11S	12S	13S
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
---	---	---	---	---	---	---	---	---	---	---	---	---

card_sum >= 2

0	0	0	1	0	0	0	0	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---

```
cards = [10 15 16 34 38 41 46]; % Pair
```

```
is_pr = ChckPr(cards);
```

```
function is_pr = ChckPr(cards)
```

```
card_vec = zeros(52,1);
```

```
card_vec(cards) = 1;
```

```
card_mat = reshape(card_vec, 4, 13);
```

```
card_sum = sum(card_mat);
```

```
is_pr = any(card_sum>=2);
```

```
end
```

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	2H	3H	4H	5H	6H	7H	8H	9H	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
1S	2S	3S	4S	5S	6S	7S	8S	9S	10S	11S	12S	13S
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
---	---	---	---	---	---	---	---	---	---	---	---	---

card_sum >= 2

1	0	0	0	0	0	0	0	1	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---

```
cards = [2 4 13 33 34 44 52]; % Two pairs
```

```
is_tw_prs = ChckTwPrs(cards)
```

```
function is_tw_prs = ChckTwPrs(cards)
```

```
card_vec = zeros(52,1);
```

```
card_vec(cards) = 1;
```

```
card_mat = reshape(card_vec, 4, 13);
```

```
card_sum = sum(card_mat);
```

```
is_tw_prs = sum(card_sum>=2)>=2;
```

```
end
```

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
1H	2H	3H	4H	5H	6H	7H	8H	9H	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
1S	2S	3S	4S	5S	6S	7S	8S	9S	10S	11S	12S	13S
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	4H	5H	6H	7H	8H	9H	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
1S	2S	3S	4S	5S	6S	7S	8S	9S	10S	11S	12S	13S
4	8	12	16	20	24	28	32	36	40	44	48	52

card_sum

0	1	1	0	4	0	0	0	0	1	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---

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	2H	3H	4H	5H	6H	7H	8H	9H	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
1S	2S	3S	4S	5S	6S	7S	8S	9S	10S	11S	12S	13S
4	8	12	16	20	24	28	32	36	40	44	48	52

card_sum

1	2	1	0	0	0	0	0	0	1	1	1	1	1
---	---	---	---	---	---	---	---	---	---	---	---	---	---

lg_vec

1	1	1	0	0	0	0	0	0	1	1	1	1	1
---	---	---	---	---	---	---	---	---	---	---	---	---	---

```
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')

'1'	'1'	'1'	'0'	'0'	'0'	'0'	'0'	'0'	'1'	'1'	'1'	'1'	'1'
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

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	6H	7H	8H	9H	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
1S	2S	3S	4S	5S	6S	7S	8S	9S	10S	11S	12S	13S
4	8	12	16	20	24	28	32	36	40	44	48	52

```
cards = [4 16 32 41 44 46 48]; % Flush
```

```
is_fls = ChckFls (cards)
```

```
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
```

card_sum

1
1
0
5

is_fls

0
0
0
1

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	2H	3H	4H	5H	6H	7H	8H	9H	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
1S	2S	3S	4S	5S	6S	7S	8S	9S	10S	11S	12S	13S
4	8	12	16	20	24	28	32	36	40	44	48	52

card_sum

0	0	0	0	1	3	0	1	0	0	2	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---

card_sum >= 3

0	0	0	0	0	1	0	0	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---

```
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

0	0	0	0	0	1	0	0	0	0	1	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---

sum(card_sum >= 2)

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
1H	2H	3H	4H	5H	6H	7H	8H	9H	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
1S	2S	3S	4S	5S	6S	7S	8S	9S	10S	11S	12S	13S
4	8	12	16	20	24	28	32	36	40	44	48	52

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

0	0	0	0	0	0	0
---	---	---	---	---	---	---

`rem(cards, 4)==1`

0	0	0	1	0	0	0
---	---	---	---	---	---	---

`rem(cards, 4)==2`

1	1	1	0	1	1	1
---	---	---	---	---	---	---

```
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	6H	7H	8H	9H	10H	11H	12H	13H
3	7	11	15	19	23	27	31	35	39	43	47	51
1S	2S	3S	4S	5S	6S	7S	8S	9S	10S	11S	12S	13S
4	8	12	16	20	24	28	32	36	40	44	48	52

1C	10C	11C	12C	13C
1	37	41	45	49
1D	10D	11D	12D	13D
2	38	42	46	50
1H	10H	11H	12H	13H
3	39	43	47	51
1S	10S	11S	12S	13S
4	40	44	48	52

```
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
```