

Poker Cards Analysis – June 2024

The Directors

Entain Plc

This is to confirm that iTech Labs has examined the game logs for Poker games for the period **June 01, 2024**, to **June 30, 2024** as recorded by the respective game servers and analyzed the Poker cards for statistical randomness. The results of the analysis are given below.

For details on the gaming sites serviced by the Entain Plc game servers and used in this audit refer to the <u>List.</u>

1. Poker hand types statistics

These calculations were done for Royal Flush, Straight Flush, Four of a Kind, Full House, Flush, Straight, 3 of a Kind, 2 pairs, 1 Pair, High Card.

The Poker hand types analysis involved creating subsets of data and conducting Chi-square tests on each subset.

The null hypothesis for the chi-square test is that the observed frequencies of each type of hand matches the theoretical values for a deck that has been shuffled using a perfect random number generator. The p-values observed in these multiple tests are expected to follow a uniform distribution for the range 0.0 to 1.0.

The analysis performs a KS Test (Kolmogorov-Smirnov test) for uniform distribution on the observed pvalues, and the combined p-value result of this test is taken as the final result of the Poker hand types statistics tests.

Test No.	DOF	ChiSqr	P-Value
1	9	4.34	0.88781
2	9	8.93	0.44351
3	9	8.19 🚬	0.51484
4	9	8.33	0.50109
5	9	10.90	0.28268
6	9	4.37	0.88575
7	9	25.16	0.00279
8	9	9.92	0.35740
9	9	10.47	0.31416
10	9	7.14	0.62269
11	9	9.08	0.43013
12	9	8.29	0.50538
13	9	11.10	0.26884
14	9	2.23	0.98729
15	9	2.99	0.96459
16	9	8.60	0.47459
17	9	20.11	0.01727
18	9	4.62	0.86629
19	9	7.03	0.63372
20	9	5.39	0.79888
21	9	6.14	0.72551
22	9	16.85	0.05114
23	9	6.51	0.68835
24	9	6.57	0.68208
25	9	12.43	0.18993
26	9	10.61	0.30316
27	9	10.97	0.27749

1.1 Poker hand types statistics for 52 cards deck:

28	9	4.06	0.90738
29	9	18.49	0.02986
30	9	3.97	0.91370
31	9	4.56	0.87123
32	9	2.96	0.96573
33	9	7.38	0.59720
34	9	1.73	0.99503
35	9	10.53	0.30899
36	9	10.70	0.29713
37	9	8.89	0.44764
38	9	11.11	0.26826
39	9	5.12	0.82343
40	9	11.14	0.26602
41	9	7.58	0.57671
42	9	13.55	0.13937
43	9	13.46	0.14294
44	9	6.42	0.69767
45	9	4.19	0.89867
46	9	12.15	0.20510
47	9	5.49	0.78947
48	9	8.27	0.50706
49	9	10.26	0.33019
50	9	10.34	0.32377
51	9	8.24	0.50974
52	9	8.49	0.48528
53	9	12.76	0.17368
54	9	7.93	0.54080
55	9	10.58	0.30574
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56	9	5.00	0.83428
56 57	9	5.00 31.43	0.83428
56 57 58	9 9 9	5.00 31.43 14.72	0.83428 0.00025 0.09899
56 57 58 59	9 9 9 9	5.00 31.43 14.72 4.93	0.83428 0.00025 0.09899 0.84076
56 57 58 59 60	9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21	0.83428 0.00025 0.09899 0.84076 0.81594
56 57 58 59 60 61	9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141
56 57 58 59 60 61 62	9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624
56 57 58 59 60 61 62 63	9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666
56 57 58 59 60 61 62 63 63 64	9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092
56 57 58 59 60 61 62 63 63 64 65	9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865
56 57 58 59 60 61 62 63 63 64 65 66	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711
56 57 58 59 60 61 62 63 63 64 65 66 66 67	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75 12.37	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711 0.19339
56 57 58 59 60 61 62 63 63 64 65 66 66 67 68	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75 12.37 7.23	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711 0.19339 0.61307
56 57 58 59 60 61 62 63 64 65 66 67 68 69	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75 12.37 7.23 12.04	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711 0.19339 0.61307 0.21131
56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75 12.37 7.23 12.04 5.75	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711 0.19339 0.61307 0.21131 0.76455
56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75 12.37 7.23 12.04 5.75 8.15	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711 0.19339 0.61307 0.21131 0.76455 0.51880
56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75 12.37 7.23 12.04 5.75 8.15 2.31	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711 0.19339 0.61307 0.21131 0.76455 0.51880 0.98565
56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75 12.37 7.23 12.04 5.75 8.15 2.31 4.90	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711 0.19339 0.61307 0.21131 0.76455 0.51880 0.98565 0.84312
56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75 12.37 7.23 12.04 5.75 8.15 2.31 4.90 15.63	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711 0.19339 0.61307 0.21131 0.76455 0.51880 0.98565 0.84312 0.07495
56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75 12.37 7.23 12.04 5.75 8.15 2.31 4.90 15.63 4.86	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711 0.19339 0.61307 0.21131 0.76455 0.51880 0.98565 0.84312 0.07495 0.84593
56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75 12.37 7.23 12.04 5.75 8.15 2.31 4.90 15.63 4.86 3.69	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711 0.19339 0.61307 0.21131 0.76455 0.51880 0.98565 0.84312 0.07495 0.84593 0.93084
56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75 12.37 7.23 12.04 5.75 8.15 2.31 4.90 15.63 4.86 3.69 15.45	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711 0.19339 0.61307 0.21131 0.76455 0.51880 0.98565 0.84312 0.07495 0.84593 0.93084 0.07934
56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75 12.37 7.23 12.04 5.75 8.15 2.31 4.90 15.63 4.86 3.69 15.45 21 60	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711 0.19339 0.61307 0.21131 0.76455 0.51880 0.98565 0.84312 0.07495 0.84593 0.93084 0.07934 0.01024
56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75 12.37 7.23 12.04 5.75 8.15 2.31 4.90 15.63 4.86 3.69 15.45 21.60 9.29	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711 0.19339 0.61307 0.21131 0.76455 0.51880 0.98565 0.84312 0.07495 0.84593 0.93084 0.07934 0.01024 0.41130
56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75 12.37 7.23 12.04 5.75 8.15 2.31 4.90 15.63 4.86 3.69 15.45 21.60 9.29 9.91	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711 0.19339 0.61307 0.21131 0.76455 0.51880 0.98565 0.84312 0.07495 0.84593 0.93084 0.07934 0.01024 0.41130 0.35746
56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75 12.37 7.23 12.04 5.75 8.15 2.31 4.90 15.63 4.86 3.69 15.45 21.60 9.29 9.91 11.66	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711 0.19339 0.61307 0.21131 0.76455 0.51880 0.98565 0.84312 0.07495 0.84593 0.93084 0.07934 0.01024 0.41130 0.35746 0.23286
56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75 12.37 7.23 12.04 5.75 8.15 2.31 4.90 15.63 4.86 3.69 15.45 21.60 9.29 9.91 11.66 4.10	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711 0.19339 0.61307 0.21131 0.76455 0.51880 0.98565 0.84312 0.07495 0.84593 0.93084 0.07934 0.01024 0.41130 0.35746 0.23286 0.90498
56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	5.00 31.43 14.72 4.93 5.21 5.88 9.34 9.68 5.04 2.89 3.75 12.37 7.23 12.04 5.75 8.15 2.31 4.90 15.63 4.86 3.69 15.45 21.60 9.29 9.91 11.66 4.10 4.94	0.83428 0.00025 0.09899 0.84076 0.81594 0.75141 0.40624 0.37666 0.83092 0.96865 0.92711 0.19339 0.61307 0.21131 0.76455 0.51880 0.98565 0.84312 0.07495 0.84312 0.07495 0.84593 0.93084 0.07934 0.01024 0.41130 0.35746 0.23286 0.90498 0.83023

84	9	5.41	0.79708
85	9	3.15	0.95805
86	9	5.87	0.75265
87	9	5.91	0.74906
88	9	10.02	0.34867
89	9	5.20	0.81675
90	9	10.01	0.34987
91	9	9.68	0.37668
92	9	10.22	0.33323
93	9	7.76	0.55809
94	9	10.46	0.31448
95	9	13.39	0.14594
96	9	15.10	0.08825
97	9	16.52	0.05685
98	9	15.51	0.07793
99	9	9.85	0.36259
100	9	8.20	0.51372
Combined P-va	alue for all tests	(Using KS method)	0.53585

1) The P-values are observed probabilities from the Chi-Square tests. The last row shows the result of the KS Test performed on the p-values for all Chi-Square tests, where there are sufficient data.

1.2 Poker hand types statistics for 36 cards deck:

- 1) Since the number of samples available was insufficient to ensure at least 5 samples in the lowest probability hand type, (Royal Flush), the chi-square test has been performed by merging the Royal Flush and Straight Flush categories.
- As the total number of tests (2) is insufficient to perform a meaningful KS Test, individual p-values from these tests 2) are carried over to the next stage for combining using the Holm's method.
- Since the number of games played each month using 36 card decks is small, the number of samples available this 3) month as well as a few previous months were insufficient to perform a meaningful statistical analysis. Hence the analysis performed this month was done using the cumulative data for the last 11 months - i.e July 2023 to June 2024.

2. Poker rank statistics

The Poker rank analysis aims to establish that the rank of the cards in each position was equally distributed in one of the 13 possible ranks (2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q, K, A) for a 52 card deck and 9 ranks (6, 7, 8, 9, 10, J, Q, K, A) for a 36 card deck.

The Poker rank analysis involved creating subsets of data and conducting Chi-square tests on each subset. The analysis performs a KS Test (Kolmogorov-Smirnov test) for uniform distribution on the observed pvalues, and the combined p-value result of this test is taken as the final result of the Ranks statistics tests.

Test No.	DOF	ChiSqr	P-Value
1	84	66.25	0.92326
2	84	101.97	0.08872
3	84	64.96	0.93882
4	84	113.35	0.01812
5	84	67.57	0.90475
6	84	75.77	0.72756

2.1 Poker rank statistics for 52 cards deck:

7	84	64.75	0.94114
8	84	66.46	0.92045
9	84	73.29	0.79170
10	84	110.37	0.02846
11	84	103.41	0.07406
12	84	76.85	0.69720
13	84	76.64	0.70320
14	84	89.44	0.32189
15	84	73.09	0.79660
16	84	70.59	0.85167
17	84	75.75	0.72802
18	84	69.89	0.86517
19	84	122.90	0.00365
20	84	88.09	0.35862
21	84	64.95	0.93893
22	84	92.54	0.24541
23	84	80.10	0.60031
23	84	102.60	0.08200
25	84	84 71	0.00200
25	84	67.65	0.10771
20	84	56.80	0.99002
28	84	77 42	0.55002
20	84	82.29	0.53252
30	84	81.91	0.55252
31	84	101.68	0.09191
32	84	99.42	0.12012
33	84	76.32	0.71215
34	84	98.81	0.12870
35	01	66 22	0.92363
))	04	00.//	
36	84	71.74	0.82756
36 37	84 84	71.74	0.82756
36 37 38	84 84 84 84	71.74 77.12 84.87	0.82756
33 36 37 38 39	84 84 84 84 84	71.74 77.12 84.87 72.70	0.82756 0.68947 0.45281 0.80581
35 36 37 38 39 40	84 84 84 84 84 84	71.74 77.12 84.87 72.70 83.31	0.82756 0.68947 0.45281 0.80581 0.50075
33 36 37 38 39 40 41	84 84 84 84 84 84 84	71.74 77.12 84.87 72.70 83.31 80.93	0.82756 0.68947 0.45281 0.80581 0.50075 0.57470
33 36 37 38 39 40 41 42	84 84 84 84 84 84 84 84 84	71.74 77.12 84.87 72.70 83.31 80.93 112.07	0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208
33 36 37 38 39 40 41 41 42 43	84 84 84 84 84 84 84 84 84 84	71.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41	0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957
33 36 37 38 39 40 41 42 43 44	84 84 84 84 84 84 84 84 84 84 84	00.22 71.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22	0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724
33 36 37 38 39 40 41 42 43 44 45	84 84	71.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88 51	0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721
33 36 37 38 39 40 41 42 43 44 45 46	84 84	00.22 71.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88.51 92.58	0.82756 0.8947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721 0.24457
33 36 37 38 39 40 41 42 43 44 45 46 47	84 84	71.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88.51 92.58 55.80	0.32303 0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721 0.24457 0.99242
33 36 37 38 39 40 41 42 43 44 45 46 47 48	84 84	70.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88.51 92.58 55.80 93.79	0.32303 0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721 0.24457 0.99242 0.21805
33 36 37 38 39 40 41 42 43 44 45 46 47 48 49	84 84	70.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88.51 92.58 55.80 93.79 74.66	0.82756 0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721 0.24457 0.99242 0.21805 0.75714
33 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50	84 84	70.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88.51 92.58 55.80 93.79 74.66 59.42	0.32303 0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721 0.24457 0.99242 0.21805 0.75714 0.98069
33 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51	84 84	71.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88.51 92.58 55.80 93.79 74.66 59.42 70.62	0.82756 0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721 0.24457 0.99242 0.21805 0.75714 0.98069 0.85103
33 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52	84 84 84 84 84 84 84 84 84 84	70.22 71.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88.51 92.58 55.80 93.79 74.66 59.42 70.62 95.13	0.82756 0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721 0.24457 0.99242 0.21805 0.75714 0.98069 0.85103 0.19092
36 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53	84 84 84	70.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88.51 92.58 55.80 93.79 74.66 59.42 70.62 95.13 71.74	0.82756 0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721 0.24457 0.99242 0.21805 0.75714 0.98069 0.85103 0.19092 0.83501
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54	84 84	00.22 71.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88.51 92.58 55.80 93.79 74.66 59.42 70.62 95.13 71.39 85.67	0.82756 0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721 0.24457 0.99242 0.21805 0.75714 0.98069 0.85103 0.19092 0.83501 0.42894
33 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54	84 84	06.22 71.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88.51 92.58 55.80 93.79 74.66 59.42 70.62 95.13 71.39 85.67 92.07	0.82756 0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721 0.24457 0.99242 0.21805 0.75714 0.98069 0.85103 0.19092 0.83501 0.42894 0.25641
36 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56	84 84	00.22 71.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88.51 92.58 55.80 93.79 74.66 59.42 70.62 95.13 71.39 85.67 92.07 84.02	0.82756 0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721 0.24457 0.99242 0.21805 0.75714 0.98069 0.85103 0.19092 0.83501 0.42894 0.25641 0.47894
36 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57	84 84	00.22 71.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88.51 92.58 55.80 93.79 74.66 59.42 70.62 95.13 71.39 85.67 92.07 84.02 71.73	0.82756 0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721 0.24457 0.99242 0.21805 0.75714 0.98069 0.85103 0.19092 0.83501 0.42894 0.25641 0.47894 0.82766
36 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58	84 84	06.22 71.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88.51 92.58 55.80 93.79 74.66 59.42 70.62 95.13 71.39 85.67 92.07 84.02 71.73 74.24	0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721 0.24457 0.99242 0.21805 0.75714 0.98069 0.85103 0.19092 0.83501 0.42894 0.25641 0.47894 0.82766 0.76796
36 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59	84 84	00.22 71.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88.51 92.58 55.80 93.79 74.66 59.42 70.62 95.13 71.39 85.67 92.07 84.02 71.73 74.24 99.20	0.82756 0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721 0.24457 0.99242 0.21805 0.75714 0.98069 0.85103 0.19092 0.83501 0.42894 0.25641 0.47894 0.82766 0.76796 0.12309
36 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	84 84	00.22 71.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88.51 92.58 55.80 93.79 74.66 59.42 70.62 95.13 71.39 85.67 92.07 84.02 71.73 74.24 99.20 89.96	0.82756 0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721 0.24457 0.99242 0.21805 0.75714 0.98069 0.85103 0.19092 0.83501 0.42894 0.25641 0.47894 0.82766 0.76796 0.12309 0.30829
36 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61	84 84	00.22 71.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88.51 92.58 55.80 93.79 74.66 59.42 70.62 95.13 71.39 85.67 92.07 84.02 71.73 74.24 99.20 89.96 67.34	0.82756 0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721 0.24457 0.99242 0.21805 0.75714 0.98069 0.85103 0.19092 0.83501 0.42894 0.25641 0.42894 0.25641 0.47894 0.82766 0.76796 0.12309 0.30829 0.90818
33 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62	84 84	00.22 71.74 77.12 84.87 72.70 83.31 80.93 112.07 76.41 78.22 88.51 92.58 55.80 93.79 74.66 59.42 70.62 95.13 71.39 85.67 92.07 84.02 71.73 74.24 99.20 89.96 67.34 108.53	0.82756 0.82756 0.68947 0.45281 0.80581 0.50075 0.57470 0.02208 0.70957 0.65724 0.34721 0.24457 0.99242 0.21805 0.75714 0.98069 0.85103 0.75714 0.98069 0.85103 0.19092 0.83501 0.42894 0.25641 0.47894 0.25641 0.47894 0.82766 0.76796 0.12309 0.30829 0.90818 0.03715

64 84 95.27 0.18834 65 84 75.33 0.73953 66 84 85.65 0.42945 67 84 109.44 0.03258 68 84 100.07 0.11133 69 84 82.24 0.53392 70 84 74.23 0.76825 71 84 73.15 0.79496 72 84 103.04 0.07764 73 84 105.74 0.05465 74 84 75.50 0.73467 75 84 82.51 0.52565 76 84 67.57 0.90468 77 84 89.39 0.32328 78 84 96.24 0.17027 79 84 80.03 0.60251 80 84 90.09 0.30489 81 84 77.3 0.78090 82 84 85.72 0.42724	63	84	98.57	0.13231
65 84 75.33 0.73953 66 84 85.65 0.42945 67 84 109.44 0.03258 68 84 100.07 0.11133 69 84 82.24 0.53392 70 84 74.23 0.76825 71 84 73.15 0.79496 72 84 105.74 0.05465 74 84 75.50 0.73467 75 84 82.51 0.52565 76 84 67.57 0.90468 77 84 89.39 0.32328 78 84 96.24 0.17027 79 84 80.03 0.60251 80 84 90.09 0.30489 81 84 73.73 0.78090 82 84 85.72 0.42724 83 84 87.93 0.36327 84 87.71 0.12933 87	64	84	95.27	0.18834
66 84 85.65 0.42945 67 84 109.44 0.03258 68 84 100.07 0.11133 69 84 82.24 0.53392 70 84 74.23 0.76825 71 84 73.15 0.79496 72 84 103.04 0.07764 73 84 105.74 0.05465 74 84 75.50 0.73467 75 84 82.51 0.52565 76 84 67.57 0.90468 77 84 89.39 0.32328 78 84 96.24 0.17027 79 84 80.03 0.60251 80 84 90.09 0.30489 81 84 73.73 0.78090 82 84 85.72 0.42724 83 84 87.93 0.36327 84 91.44 0.27034 85 <td>65</td> <td>84</td> <td>75.33</td> <td>0.73953</td>	65	84	75.33	0.73953
67 84 109.44 0.03258 68 84 100.07 0.11133 69 84 82.24 0.53392 70 84 74.23 0.76825 71 84 73.15 0.79496 72 84 103.04 0.07764 73 84 105.74 0.05465 74 84 75.50 0.73467 75 84 82.51 0.52565 76 84 67.57 0.90468 77 84 89.39 0.32328 78 84 96.24 0.17027 79 84 80.03 0.60251 80 84 90.09 0.30489 81 84 73.73 0.78090 82 84 85.72 0.42724 83 84 87.93 0.36327 84 98.77 0.12933 87 85 84 100.43 0.10673 <t< td=""><td>66</td><td>84</td><td>85.65</td><td>0.42945</td></t<>	66	84	85.65	0.42945
68 84 100.07 0.11133 69 84 82.24 0.53392 70 84 74.23 0.76825 71 84 73.15 0.79496 72 84 103.04 0.07764 73 84 105.74 0.05465 74 84 75.50 0.73467 75 84 82.51 0.52565 76 84 67.57 0.90468 77 84 89.39 0.32328 78 84 96.24 0.17027 79 84 80.03 0.60251 80 84 90.09 0.30489 81 84 73.73 0.78090 82 84 85.72 0.42724 83 84 87.93 0.36327 84 84 91.44 0.27128 85 84 100.43 0.10673 86 84 98.77 0.12933 <tr< td=""><td>67</td><td>84</td><td>109.44</td><td>0.03258</td></tr<>	67	84	109.44	0.03258
69 84 82.24 0.53392 70 84 74.23 0.76825 71 84 73.15 0.79496 72 84 103.04 0.07764 73 84 105.74 0.05465 74 84 75.50 0.73467 75 84 82.51 0.52565 76 84 67.57 0.90468 77 84 89.39 0.32328 78 84 96.24 0.17027 79 84 80.03 0.60251 80 84 90.09 0.30489 81 84 73.73 0.78090 82 84 85.72 0.42724 83 84 87.93 0.36327 84 98.77 0.12933 85 84 100.43 0.10673 86 84 98.77 0.12933 87 84 73.16 0.79488 88	68	84	100.07	0.11133
70 84 74.23 0.76825 71 84 73.15 0.79496 72 84 103.04 0.07764 73 84 105.74 0.05465 74 84 75.50 0.73467 75 84 82.51 0.52565 76 84 67.57 0.90468 77 84 89.39 0.32328 78 84 96.24 0.17027 79 84 80.03 0.60251 80 84 90.09 0.30489 81 84 73.73 0.78090 82 84 85.72 0.42724 83 84 87.93 0.36327 84 84 91.44 0.27128 85 84 100.43 0.10673 86 84 98.77 0.12933 87 84 73.16 0.79488 88 84 84.98 0.44971	69	84	82.24	0.53392
71 84 73.15 0.79496 72 84 103.04 0.07764 73 84 105.74 0.05465 74 84 75.50 0.73467 75 84 82.51 0.52565 76 84 67.57 0.90468 77 84 89.39 0.32328 78 84 96.24 0.17027 79 84 80.03 0.60251 80 84 90.09 0.30489 81 84 73.73 0.78090 82 84 85.72 0.42724 83 84 87.93 0.36327 84 84 91.44 0.27128 85 84 100.43 0.10673 86 84 98.77 0.12933 87 84 73.16 0.79488 88 84 84.98 0.44971 90 84 72.37 0.81331 94 84 72.37 0.81331 94 84	70	84	74.23	0.76825
72 84 103.04 0.07764 73 84 105.74 0.05465 74 84 75.50 0.73467 75 84 82.51 0.52565 76 84 67.57 0.90468 77 84 89.39 0.32328 78 84 96.24 0.17027 79 84 80.03 0.60251 80 84 90.09 0.30489 81 84 73.73 0.78090 82 84 85.72 0.42724 83 84 87.93 0.36327 84 84 91.44 0.27128 85 84 100.43 0.10673 86 84 98.77 0.12933 87 84 73.16 0.79488 88 84 84.98 0.44971 90 84 72.37 0.81331 94 84 72.37 0.81331 94 84 92.73 0.31313 96 84	71	84	73.15	0.79496
73 84 105.74 0.05465 74 84 75.50 0.73467 75 84 82.51 0.52565 76 84 67.57 0.90468 77 84 89.39 0.32328 78 84 96.24 0.17027 79 84 80.03 0.60251 80 84 90.09 0.30489 81 84 73.73 0.78090 82 84 85.72 0.42724 83 84 91.44 0.27128 85 84 100.43 0.10673 86 84 98.77 0.12933 87 84 84.34 0.46905 89 84 84.34 0.46905 89 84 84.34 0.46905 89 84 72.37 0.81331 90 84 72.37 0.81331 94 84 72.37 0.81331 94 84 96.48 0.16601 97 84 <	72	84	103.04	0.07764
74 84 75.50 0.73467 75 84 82.51 0.52565 76 84 67.57 0.90468 77 84 89.39 0.32328 78 84 96.24 0.17027 79 84 80.03 0.60251 80 84 90.09 0.30489 81 84 73.73 0.78090 82 84 85.72 0.42724 83 84 91.44 0.27128 85 84 100.43 0.10673 86 84 98.77 0.12933 87 84 84.34 0.46905 89 84 84.34 0.46905 89 84 84.34 0.46905 89 84 73.16 0.62295 91 84 91.48 0.27034 92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 92.33 0.00404 95 84 <t< td=""><td>73</td><td>84</td><td>105.74</td><td>0.05465</td></t<>	73	84	105.74	0.05465
75 84 82.51 0.52565 76 84 67.57 0.90468 77 84 89.39 0.32328 78 84 96.24 0.17027 79 84 80.03 0.60251 80 84 90.09 0.30489 81 84 73.73 0.78090 82 84 85.72 0.42724 83 84 87.93 0.36327 84 84 91.44 0.27128 85 84 100.43 0.10673 86 84 98.77 0.12933 87 84 73.16 0.79488 88 84 84.34 0.46905 89 84 84.98 0.44971 90 84 79.36 0.62295 91 84 91.48 0.27034 92 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 <	74	84	75.50	0.73467
76 84 67.57 0.90468 77 84 89.39 0.32328 78 84 96.24 0.17027 79 84 80.03 0.60251 80 84 90.09 0.30489 81 84 73.73 0.78090 82 84 85.72 0.42724 83 84 87.93 0.36327 84 84 91.44 0.27128 85 84 100.43 0.10673 86 84 98.77 0.12933 87 84 73.16 0.79488 88 84 84.34 0.46905 89 84 84.98 0.44971 90 84 79.36 0.62295 91 84 91.48 0.27034 92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 <	75	84	82.51	0.52565
77 84 89.39 0.32328 78 84 96.24 0.17027 79 84 80.03 0.60251 80 84 90.09 0.30489 81 84 73.73 0.78090 82 84 85.72 0.42724 83 84 87.93 0.36327 84 84 91.44 0.27128 85 84 100.43 0.10673 86 84 98.77 0.12933 87 84 73.16 0.79488 88 84 84.98 0.44971 90 84 79.36 0.62295 91 84 91.48 0.27034 92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 92.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 <t< td=""><td>76</td><td>84</td><td>67.57</td><td>0.90468</td></t<>	76	84	67.57	0.90468
78 84 96.24 0.17027 79 84 80.03 0.60251 80 84 90.09 0.30489 81 84 73.73 0.78090 82 84 85.72 0.42724 83 84 87.93 0.36327 84 84 91.44 0.27128 85 84 100.43 0.10673 86 84 98.77 0.12933 87 84 84.34 0.46905 89 84 84.98 0.44971 90 84 79.36 0.62295 91 84 91.48 0.27034 92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.23 0.97670 99 84 <	77	84	89.39	0.32328
79 84 80.03 0.60251 80 84 90.09 0.30489 81 84 73.73 0.78090 82 84 85.72 0.42724 83 84 87.93 0.36327 84 84 91.44 0.27128 85 84 100.43 0.10673 86 84 98.77 0.12933 87 84 73.16 0.79488 88 84 84.34 0.46905 89 84 84.98 0.44971 90 84 79.36 0.62295 91 84 91.48 0.27034 92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.00 0.89799 99 84 <	78	84	96.24	0.17027
80 84 90.09 0.30489 81 84 73.73 0.78090 82 84 85.72 0.42724 83 84 87.93 0.36327 84 84 91.44 0.27128 85 84 100.43 0.10673 86 84 98.77 0.12933 87 84 73.16 0.79488 88 84 84.34 0.46905 89 84 84.98 0.44971 90 84 79.36 0.62295 91 84 91.48 0.27034 92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.23 0.97670	79	84	80.03	0.60251
81 84 73.73 0.78090 82 84 85.72 0.42724 83 84 87.93 0.36327 84 84 91.44 0.27128 85 84 100.43 0.10673 86 84 98.77 0.12933 87 84 73.16 0.79488 88 84 84.34 0.46905 89 84 84.98 0.44971 90 84 79.36 0.62295 91 84 91.48 0.27034 92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.00 0.89799 99 84 82.71 0.51925 100 84 60.23 0.97670	80	84	90.09	0.30489
82 84 85.72 0.42724 83 84 87.93 0.36327 84 84 91.44 0.27128 85 84 100.43 0.10673 86 84 98.77 0.12933 87 84 73.16 0.79488 88 84 84.34 0.46905 89 84 84.98 0.44971 90 84 79.36 0.62295 91 84 91.48 0.27034 92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.00 0.89799 99 84 82.71 0.51925 100 84 60.23 0.97670	81	84	73.73	0.78090
83 84 87.93 0.36327 84 84 91.44 0.27128 85 84 100.43 0.10673 86 84 98.77 0.12933 87 84 73.16 0.79488 88 84 84.34 0.46905 89 84 84.98 0.44971 90 84 79.36 0.62295 91 84 91.48 0.27034 92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.00 0.89799 99 84 82.71 0.51925 100 84 60.23 0.97670	82	84	85.72	0.42724
84 84 91.44 0.27128 85 84 100.43 0.10673 86 84 98.77 0.12933 87 84 73.16 0.79488 88 84 84.34 0.46905 89 84 84.98 0.44971 90 84 79.36 0.62295 91 84 91.48 0.27034 92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.00 0.89799 99 84 82.71 0.51925 100 84 60.23 0.97670	83	84	87.93	0.36327
85 84 100.43 0.10673 86 84 98.77 0.12933 87 84 73.16 0.79488 88 84 84.34 0.46905 89 84 84.98 0.44971 90 84 79.36 0.62295 91 84 91.48 0.27034 92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.00 0.39799 99 84 82.71 0.51925 100 84 60.23 0.97670	84	84	91.44	0.27128
86 84 98.77 0.12933 87 84 73.16 0.79488 88 84 84.34 0.46905 89 84 84.98 0.44971 90 84 79.36 0.62295 91 84 91.48 0.27034 92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.00 0.89799 99 84 82.71 0.51925 100 84 60.23 0.97670	85	84	100.43	0.10673
87 84 73.16 0.79488 88 84 84.34 0.46905 89 84 84.98 0.44971 90 84 79.36 0.62295 91 84 91.48 0.27034 92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.00 0.89799 99 84 82.71 0.51925 100 84 60.23 0.97670	86	84	98.77	0.12933
88 84 84.34 0.46905 89 84 84.98 0.44971 90 84 79.36 0.62295 91 84 91.48 0.27034 92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.00 0.89799 99 84 82.71 0.51925 100 84 60.23 0.97670	87	84	73.16	0.79488
89 84 84.98 0.44971 90 84 79.36 0.62295 91 84 91.48 0.27034 92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.00 0.89799 99 84 82.71 0.51925 100 84 60.23 0.97670	88	84	84.34	0.46905
90 84 79.36 0.62295 91 84 91.48 0.27034 92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.00 0.89799 99 84 82.71 0.51925 100 84 60.23 0.97670	89	84	84.98	0.44971
91 84 91.48 0.27034 92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.00 0.89799 99 84 82.71 0.51925 100 84 60.23 0.97670	90	84	79.36	0.62295
92 84 76.08 0.71887 93 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.00 0.89799 99 84 82.71 0.51925 100 84 60.23 0.97670	91	84	91.48	0.27034
93 84 72.37 0.81331 94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.00 0.89799 99 84 82.71 0.51925 100 84 60.23 0.97670	92	84	76.08	0.71887
94 84 122.33 0.00404 95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.00 0.89799 99 84 82.71 0.51925 100 84 60.23 0.97670 Combined P-value for all tests (Using KS method)	93	84	72.37	0.81331
95 84 89.78 0.31313 96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.00 0.89799 99 84 82.71 0.51925 100 84 60.23 0.97670 Combined P-value for all tests (Using KS method) 0.16091	94	84	122.33	0.00404
96 84 96.48 0.16601 97 84 68.28 0.89358 98 84 68.00 0.89799 99 84 82.71 0.51925 100 84 60.23 0.97670 Combined P-value for all tests (Using KS method)	95	84	89.78	0.31313
97 84 68.28 0.89358 98 84 68.00 0.89799 99 84 82.71 0.51925 100 84 60.23 0.97670 Combined P-value for all tests (Using KS method)	96	84	96.48	0.16601
98 84 68.00 0.89799 99 84 82.71 0.51925 100 84 60.23 0.97670 Combined P-value for all tests (Using KS method)	97	84	68.28	0.89358
99 84 82.71 0.51925 100 84 60.23 0.97670 Combined P-value for all tests (Using KS method)	98	84	68.00	0.89799
100 84 60.23 0.97670 Combined P-value for all tests (Using KS method)	99	84	82.71	0.51925
Combined P-value for all tests (Using KS method) 0.16091	100	84	60.23	0.97670
	Combined P-v	alue for all tests	(Using KS method)	0.16091

1) The P-values are observed probabilities from the Chi-Square tests. The last row shows the result of the KS Test performed on the p-values for all Chi-Square tests, where there are sufficient data.

2.2 Poker rank statistics for 36 cards deck:

Test No.	Positions	DOF	ChiSqr	P-Value			
1	7	56	72.74	0.06570			
2	7	56	50.37	0.68714			
3	7	56	43.04	0.89795			
4	7	56	62.19	0.26523			
5	7	56	47.02	0.79813			
6	7	56	47.63	0.77943			
7	7	56	61.51	0.28541			
8	7	56	56.71	0.44831			
Combined P-v	N/A (Insufficient data)						

Notes:

- 1) As the total number of tests (8) is insufficient to perform a meaningful KS Test, individual p-values from these tests are carried over to the next stage for combining using the Holm's method.
- 2) Since the number of games played each month using 36 card decks is small, the number of samples available this month as well as a few previous months were insufficient to perform a meaningful statistical analysis. Hence the analysis performed this month was done using the cumulative data for the last 11 months i.e July 2023 to June 2024.

3. Poker suits statistics

The Poker suits analysis aims to verify that that the cards dealt exhibit an equal probability of all 4 suits (Clubs, Diamonds, Hearts and Spades) in all positions.

The Poker suits analysis involved creating subsets of data and conducting Chi-square tests on each subset. The analysis performs a KS Test (Kolmogorov-Smirnov test) for uniform distribution on the observed p-values, and the combined p-value result of this test is taken as the final result of the Suits statistics tests.

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Test No.	Positions	DOF	ChiSgr	P-Value
1	7	21	16.34	0.75034
2	7	21	23.07	0.34011
3	7	21	9.61	0.98359
4	7	21	16.85	0.72017
5	7	21	34.78	0.02982
6	7	21	17.22	0.69745
7	7	21	21.32	0.43957
8	7	21	8.23	0.99409
9	7	21	11.64	0.94872
10	7	21	27.74	0.14781
11	7	21	18.40	0.62340
12	7	21	22.47	0.37301
13	7	21	12.29	0.93146
14	7	21	21.60	0.42302
15	7	21	36.04	0.02166
16	7	21	22.44	0.37453
17	7	21	21.79	0.41168
18	7	21	18.85	0.59486
19	7	21	18.65	0.60738
20	7	21	20.36	0.49848
21	7	21	12.78	0.91618
22	7	21	13.33	0.89654
23	7	21	12.79	0.91584

3.1 Poker suits statistics for 52 cards deck:

24	7	21	16.82	0.72172
25	7	21	15.80	0.78072
26	7	21	36.02	0.02178
27	7	21	23.39	0.32329
28	7	21	14.02	0.86886
29	7	21	22.85	0 35186
30	7	21	13 32	0.89690
31	7	21	19.02	0.59090
22	7	21	27.04	0.14106
32	7	21	27.94	0.14190
33	7	21	23.02	0.34291
34	/	21	20.59	0.48408
35	/	21	19.49	0.55401
36	/	21	26.12	0.20174
3/	/	21	23.20	0.33318
38	7	21	16.36	0.74881
39	7	21	24.29	0.27913
40	7	21	14.35	0.85426
41	7	21	24.54	0.26761
42	7	21	21.39	0.43521
43	7	21	22.47	0.37296
44	7	21	29.58	0.10067
45	7	21	11.87	0.94301
46	7	21	26.77	0.17859
47	7	21	17.94	0.65292
48	7	21	18.51	0.61672
49	7	21	18.17	0.63794
50	7	21	21.22	0.44536
51	7	21	17.91	0.65482
52	7	21	25.18	0.23925
52 53	7 7	21	25.18 27.53	0.23925
52 53 54	7 7 7	21 21 21	25.18 27.53 15.30	0.23925 0.15414 0.80754
52 53 54 55	7 7 7 7 7	21 21 21 21 21	25.18 27.53 15.30 25.61	0.23925 0.15414 0.80754 0.22179
52 53 54 55 56	7 7 7 7 7 7	21 21 21 21 21 21 21	25.18 27.53 15.30 25.61 19.55	0.23925 0.15414 0.80754 0.22179 0.54995
52 53 54 55 56 57	7 7 7 7 7 7 7	21 21 21 21 21 21 21 21	25.18 27.53 15.30 25.61 19.55 27.07	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847
52 53 54 55 56 57 58	7 7 7 7 7 7 7 7	21 21 21 21 21 21 21 21 21 21	25.18 27.53 15.30 25.61 19.55 27.07 15.94	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295
52 53 54 55 56 57 58 59	7 7 7 7 7 7 7 7 7	21 21 21 21 21 21 21 21 21 21 21	25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214
52 53 54 55 56 57 58 59 60	7 7 7 7 7 7 7 7 7 7	21 21 21 21 21 21 21 21 21 21 21 21	25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90 10.47	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214 0.97214
52 53 54 55 56 57 58 59 60 61	7 7 7 7 7 7 7 7 7 7 7 7	21 21 21 21 21 21 21 21 21 21 21 21 21	25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90 10.47 27.40	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214 0.97214 0.15788
52 53 54 55 56 57 58 59 60 61 61	7 7 7 7 7 7 7 7 7 7 7 7 7	21 21 21 21 21 21 21 21 21 21 21 21 21 2	25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90 10.47 27.40	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214 0.97214 0.15788 0.81289
52 53 54 55 56 57 58 59 60 61 61 62 62	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	21 21 21 21 21 21 21 21 21 21 21 21 21 2	25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90 10.47 27.40 15.20	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214 0.97214 0.15788 0.81288 0.72249
52 53 54 55 56 57 58 59 60 61 62 63 63	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	21 21 21 21 21 21 21 21 21 21 21 21 21 2	25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90 10.47 27.40 15.20 15.77 17.21	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214 0.97214 0.97214 0.15788 0.81288 0.81288
52 53 54 55 56 57 58 59 60 61 61 62 63 63 64	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	21 21 21 21 21 21 21 21 21 21 21 21 21 2	25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90 10.47 27.40 15.20 15.77 17.31 27.11	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214 0.97214 0.15788 0.81288 0.78248 0.69206 0.16718
52 53 54 55 56 57 58 59 60 61 62 63 63 64 65	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	21 21 21 21 21 21 21 21 21 21 21 21 21 2	25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90 10.47 27.40 15.20 15.77 17.31 27.11	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214 0.97214 0.15788 0.81288 0.81288 0.78248 0.69206 0.16718
52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	21 21 21 21 21 21 21 21 21 21 21 21 21 2	25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90 10.47 27.40 15.20 15.77 17.31 27.11 19.35	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214 0.97214 0.97214 0.15788 0.81288 0.81288 0.78248 0.69206 0.16718 0.56266
52 53 54 55 56 57 58 59 60 61 61 62 63 63 64 65 66 66 67	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	21 21 21 21 21 21 21 21 21 21 21 21 21 2	25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90 10.47 27.40 15.20 15.77 17.31 27.11 19.35 22.65	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214 0.97214 0.97214 0.15788 0.81288 0.81288 0.78248 0.69206 0.16718 0.56266 0.36318
52 53 54 55 56 57 58 59 60 61 62 63 63 64 65 66 66 67 68	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	21 21 21 21 21 21 21 21 21 21 21 21 21 2	25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90 10.47 27.40 15.20 15.77 17.31 27.11 19.35 22.65 26.33	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214 0.97214 0.97214 0.15788 0.81288 0.78248 0.69206 0.16718 0.56266 0.36318 0.19420
52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	21 21 21 21 21 21 21 21 21 21 21 21 21 2	25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90 10.47 27.40 15.20 15.77 17.31 27.11 19.35 22.65 26.33 19.27	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214 0.97214 0.97214 0.15788 0.81288 0.78248 0.69206 0.16718 0.56266 0.36318 0.19420 0.56804
52 53 54 55 56 57 58 59 60 61 62 63 64 62 63 64 65 66 67 68 68 69 70	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	21 21 21 21 21 21 21 21 21 21 21 21 21 2	25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90 10.47 27.40 15.20 15.77 17.31 27.11 19.35 22.65 26.33 19.27 22.19	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214 0.97214 0.97214 0.15788 0.81288 0.81288 0.81288 0.78248 0.69206 0.16718 0.56266 0.36318 0.19420 0.56804 0.38839
52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	21 21 21 21 21 21 21 21 21 21 21 21 21 2	25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90 10.47 27.40 15.20 15.77 17.31 27.11 19.35 22.65 26.33 19.27 22.19 11.88	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214 0.97214 0.97214 0.15788 0.81288 0.69206 0.16718 0.56266 0.36318 0.19420 0.56804 0.38839 0.94272
52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	21 21	25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90 10.47 27.40 15.20 15.77 17.31 27.11 19.35 22.65 26.33 19.27 22.19 11.88 21.58	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214 0.97214 0.97214 0.15788 0.81288 0.78248 0.69206 0.16718 0.56266 0.36318 0.19420 0.56804 0.38839 0.94272 0.42419
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52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78	7 7 <tr td=""> <!--</td--><td>21 21</td><td>25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90 10.47 27.40 15.20 15.77 17.31 27.11 19.35 22.65 26.33 19.27 22.19 11.88 21.58 33.31 19.70 17.30 16.63 12.88 19.24</td><td>0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214 0.97214 0.97214 0.15788 0.81288 0.69206 0.16718 0.56266 0.36318 0.19420 0.56804 0.38839 0.94272 0.42419 0.04294 0.54004 0.54004 0.54004 0.54004 0.54004</td></tr>	21 21	25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90 10.47 27.40 15.20 15.77 17.31 27.11 19.35 22.65 26.33 19.27 22.19 11.88 21.58 33.31 19.70 17.30 16.63 12.88 19.24	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214 0.97214 0.97214 0.15788 0.81288 0.69206 0.16718 0.56266 0.36318 0.19420 0.56804 0.38839 0.94272 0.42419 0.04294 0.54004 0.54004 0.54004 0.54004 0.54004
21 21	25.18 27.53 15.30 25.61 19.55 27.07 15.94 12.90 10.47 27.40 15.20 15.77 17.31 27.11 19.35 22.65 26.33 19.27 22.19 11.88 21.58 33.31 19.70 17.30 16.63 12.88 19.24	0.23925 0.15414 0.80754 0.22179 0.54995 0.16847 0.77295 0.91214 0.97214 0.97214 0.15788 0.81288 0.69206 0.16718 0.56266 0.36318 0.19420 0.56804 0.38839 0.94272 0.42419 0.04294 0.54004 0.54004 0.54004 0.54004 0.54004		

80	7	21	17.54	0.67813
81	7	21	32.26	0.05508
82	7	21	21.46	0.43124
83	7	21	22.19	0.38872
84	7	21	21.32	0.43961
85	7	21	14.49	0.84771
86	7	21	22.82	0.35352
87	7	21	21.36	0.43729
88	7	21	14.07	0.86646
89	7	21	16.58	0.73634
90	7	21	29.30	0.10707
91	7	21	17.15	0.70213
92	7	21	13.11	0.90467
93	7	21	20.82	0.47010
94	7	21	21.65	0.41991
95	7	21	16.66	0.73158
96	7	21	23.96	0.29493
97	7	21	18.38	0.62508
98	7	21	19.29	0.56661
99	7	21	14.01	0.86927
100	7	21	14.67	0.83902
Combined P-va	alue for all tests	(Using KS meth	od)	0.22355

1) The P-values are observed probabilities from the Chi-Square tests. The last row shows the result of the KS Test performed on the p-values for all Chi-Square tests, where there are sufficient data.

Test No.	Positions	DOF	ChiSqr	P-Value		
1	7	21	14.42	0.85071		
2	7	21	17.25	0.69597		
3	7	21	29.54	0.10172		
4	7	21	22.69	0.36084		
5	7	21	20.49	0.49057		
6	7	21	11.97	0.94048		
7	7	21	23.44	0.32097		
8	7	21	38.59	0.01098		
Combined P-	Combined P-value for all tests (Using KS method)					

3.2 Poker suits statistics for 36 cards deck:

Notes:

- 1) As the total number of tests (8) is insufficient to perform a meaningful KS Test, individual p-values from these tests are carried over to the next stage for combining using the Holm's method.
- 2) Since the number of games played each month using 36 card decks is small, the number of samples available this month as well as a few previous months were insufficient to perform a meaningful statistical analysis. Hence the analysis performed this month was done using the cumulative data for the last 11 months i.e July 2023 to June 2024.

4. Summary of the analysis

4.1 Summary of the analysis of 52 cards deck:

The analysis of 52 cards completes by combining the result of the KS Test performed in the 3 types of analysis (Hand Types, Ranks and Suits) for 52 card decks using the Holm's method and producing a single Combined P -value.

The combined p-value produced using the Holm's method is used as indication for statistical randomness.

Combination of p-values using Holm's Method			
Test	P-Value	P-Adjusted	
Ranks Test	0.16091	0.48272	
Suits Test	0.22355	0.48272	
Hand Types Test	0.53585	0.53585	
Combined P-Value using Holm's Method		0.48272	

1) The combined p-value of all statistical tests using Holm's Method conducted for 52 card decks is greater than the minimum value of 0.05 which indicates that the randomness of the observed data falls within 95% confidence limits.

The final outcome of the analysis of 52 cards deck indicates that the RNG is working correctly.

4.2 Summary of the analysis of 36 cards deck:

The analysis of 36 cards completes by combining the result of the KS Test performed in the 3 types of analysis (Hand Types, Ranks and Suits) for 36 card decks using the Holm's method and producing a single Combined P -value. Where there is insufficient data the individual Chi-Square tests results are used in the Holm's method for producing a combined p-value.

The combined p-value produced from the using the Holm's method is used as indication for statistical randomness.

Combination of p-values using Holm's Method		
Test	P-Value	P-Adjusted
Ranks Test 1	0.06570	1.00000
Ranks Test 2	0.68714	1.00000
Ranks Test 3	0.89795	1.00000
Ranks Test 4	0.26523	1.00000
Ranks Test 5	0.79813	1.00000
Ranks Test 6	0.77943	1.00000
Ranks Test 7	0.28541	1.00000
Ranks Test 8	0.44831	1.00000
Suits Test 1	0.85071	1.00000
Suits Test 2	0.69597	1.00000
Suits Test 3	0.10172	1.00000
Suits Test 4	0.36084	1.00000
Suits Test 5	0.49057	1.00000
Suits Test 6	0.94048	1.00000
Suits Test 7	0.32097	1.00000
Suits Test 8	0.01098	0.19761
Hand Types Test 1	0.57893	1.00000
Hand Types Test 2	0.12390	1.00000
Combined P-Value using Holm's Method		0.19761

Notes:

- 1) The combined p-value of all statistical tests using Holm's Method conducted for 36 card decks is greater than the minimum value of 0.05 which indicates that the randomness of the observed data falls within 95% confidence limits.
- 2) Since the number of games played each month using 36 card decks is small, the number of samples available this month as well as a few previous months were insufficient to perform a meaningful statistical analysis. Hence the analysis performed this month was done using the cumulative data for the last 10 months i.e July 2023 to June 2024.

The final outcome of the analysis of 36 cards deck indicates that the RNG is working correctly.

5. Conclusion

Analysis of actual data from game logs for 'Hand Types, 'Ranks' and 'Suits' for **52-card decks** and **36-card decks** indicated statistical randomness.

iTech Labs has done limited sanity checks to verify the integrity of the game logs. iTech Labs also maintains a copy of the game logs for verification purposes. There were a large enough number of game records to give the calculations sufficient statistical power.

We conclude that the Random Number Generator (RNG) is working correctly.

Please click here to see the Original report.

Signed:

Disclaimer.

Alvin Rizaldi Chief Executive Officer iTech Labs Date: 15 July 2024

Signed:

linga Bhargana

Divya Bhargava Project Manager iTech Labs Date: 15 July 2024

While it is not possible to test all possible scenarios in a laboratory environment, iTech Labs has conducted a level of testing appropriate for a component test of this type.