EEL 2880: Using Random structures with Software platforms to generate

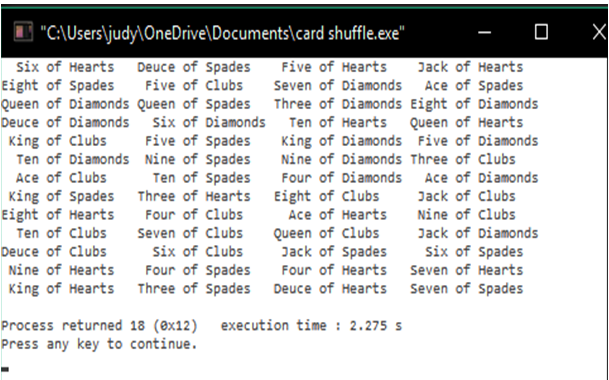
Entertainment activities such as Card Games, prediction schemes,

Fall 2018/updated Fall 2019: Ref: Deitel How to Program C

Eric and Dennis and Subbarao Wunnava: FIU ECE Department: 10 27 2019

1. **//ELECTRICAL and Computer Engineering: FIU:**
2. **//EEL 2880: Software Engineering: Subbarao Wunnava**
3. **//Using Random Timing and Distribution Systems:**
4. **//04 19 2016: Card Shuffle Program: Courtesy: Eric and Dennis 2880: updated Fall 2019**
5. #inclu**d**e <stdio.h>
6. #include <stdlib.h>
7. #include <time.h>
9. #define CARDS 52
10. #define FACES 13
12. *//card structure defiition*
13. struct card {
14. const char \*face; *// define pointer face*
15. const char \*suit; *// define pointer face*
16. };
18. typedef struct card Card; *// new type name for struct card*
20. *// prototypes All functions defined*
21. void fillDeck( Card \* const wDeck, const char \* wFace[],
22. const char \* wSuit[] );
23. void shuffle( Card \* const wDeck );
24. void deal( const Card \*const wDeck );

1. int main( void )
2. {
3. Card deck [ CARDS ]; *//define array of Cards*
5. *//initialize array of pointers*
6. const char \* face[] = { "Ace" , "Deuce" , "Three" , "Four" , "Five" , "Six" , "Seven" , "Eight" , "Nine" , "Ten" , "Jack" , "Queen" , "King"};
8. *// initialize array of pointers*
9. const char \*suit[] = { "Hearts" , "Diamonds" , "Clubs" , "Spades"};
11. [srand](http://www.opengroup.org/onlinepubs/009695399/functions/srand.html)( [time](http://www.opengroup.org/onlinepubs/009695399/functions/time.html)( NULL) ); *//randomize*
13. fillDeck( deck, face, suit ); *//load the deck with Cards*
14. shuffle( deck ); *// put Cards in random order*
15. deal( deck ); *// deal all 52 Cards*
16. } *// end main*
18. *// place strings into Card Structures*
19. void fillDeck( Card \* const wDeck, const char \* wFace [],
20. const char \* wSuit[] )
21. {
22. size\_t i; *// counter*
24. *// loop through wDeck*
25. for (i = 0; i < CARDS; ++i ) {
26. wDeck [ i ] . face = wFace[ i % FACES];
27. wDeck [ i ] . suit = wSuit[ i / FACES];
28. } *// end for*
29. } *// end function fillDeck*
30. // random shuffle of cards
31. *// shuffle cards*
32. void shuffle( Card \* const wDeck )
33. {
34. size\_t i; *// counter*
35. size\_t j; *// variable to hold random variable between 0-51*
36. Card temp; *// define teporary structure for swapping Cards*
37. *// loop through wDeck randoml swapping Cards*
38. for ( i = 0; i < CARDS; ++i) {
39. j = [rand](http://www.opengroup.org/onlinepubs/009695399/functions/rand.html) () % CARDS;
40. temp = wDeck[ i ];
41. wDeck[ i ] = wDeck [ j ];
42. wDeck[ j ] = temp;
43. } *// end for*
44. }*// end function shuffle*
46. *// deal cards*
47. void deal( const Card \* const Deck)
48. {
49. size\_t i; *// counter*
51. *// loop through wDeck*
52. for ( i = 0; i < CARDS; ++i ) {
53. [printf](http://www.opengroup.org/onlinepubs/009695399/functions/printf.html) ("%5s of %-8s%s", Deck[ i ].face, Deck[ i ].suit,
54. (i + 1 ) % 4 ? " " : "**\n**" );
55. } *// end for*
56. } *// end function deal*



09 12 2018: Courtesy: Eric and Dennis from EEL 2880 Software Engineering Class

Updated Fall 2019: Used in EEL 2880 Software Engineering

and associated C and C++ classes