

# EECS 10: COMP METHODS IN ECE

## Discussion 6

Guantao Liu  
guantaol@uci.edu

07/09/2015

## Assignment Discussion

- Problem 2 of Assignment 3
  - Blackjack
  - Rules:
    - The card number is random in the range of 1 to 13.
    - Player's round: the dealer draws an initial card for the player. Then the player can draw additional cards as many times as he wants. If the combined value is more than 21, he loses immediately. If he decides not to draw any more cards, it is the dealer's turn.
    - Dealer's round: the dealer keeps drawing cards until:
      - If his combined value is more than 21, the dealer loses.
      - If his combined value is greater than or equal to the player's value, the dealer wins.

## Program Interface

```

*****
** Welcome to EECS10 Blackjack **
*****
Your first card is 10
Do you want another card?
Type 1 for YES, 0 for NO
1
Your new card is 13
Your combined value is 20
Do you want another card?
Type 1 for YES, 0 for NO
1
Your new card is 4
Your combined value is 24
Sorry. You Lose!
                
```

```

*****
** Welcome to EECS10 Blackjack **
*****
Your first card is 7
Do you want another card?
Type 1 for YES, 0 for NO
Your new card is 10
Your combined value is 17
Do you want another card?
Type 1 for YES, 0 for NO
0
Dealer draws a card.
Dealer's card is : 13
Dealer's value is : 10, you have 17
Dealer draws a card.
Dealer's card is : 10
Dealer's value is : 20, you have 17
Sorry. You Lose!
                
```

repetition 1  
statement

structured  
jump  
statement

repetition  
statement

conditional statement

EECS 10 Discussion 6, July, 2015

(c) 2015 Guantao Liu

3

## Control Flow

- Before implementing the program, you need to understand the control flow of this program.
  - In either the player's round or the dealer's round, he may keep drawing cards.
    - Repetition structures
  - However, there are more than one conditions to stop drawing cards.
    - Structured jump statements
  - Also, the player may lose before the dealer's round.
    - Conditional statements

EECS 10 Discussion 6, July, 2015

(c) 2015 Guantao Liu

4

## Draw a Random Card

- To generate a random number, use the C standard function `rand()`.
  - `rand()` generates a random number in the range of 0 to 32767.  
`card = rand() % 13 + 1;`
  - With the same seed, `rand()` generates the same sequence of “random” numbers.
  - Set the seed with the current time  
`srand(time(NULL));`
  - Import `rand()`, `srand()`, and `time()` from standard C libraries  
`#include <stdlib.h>`  
`#include <time.h>`

EECS 10 Discussion 6, July, 2015

(c) 2015 Guantao Liu

5

## Functions

- Some part of the codes (e.g. drawing a card) needs to be reused for many times, so you can put them in a function.
- Concepts:
  - Function declaration
  - Function definition
  - Function call

```
unsigned int draw_card()
{
    ...;
    unsigned int card;
    card = rand() % 13 + 1;
    ...;
    return card;
}
...;

int main() {
    ...;
    new_card = draw_card();
    ...;
}
```

EECS 10 Discussion 6, July, 2015

(c) 2015 Guantao Liu

6

## Assignment Discussion

- More hints:
  - To get the face value of a card, you may use the conditional structure or the conditional operator.
  - To calculate the combined value of the player's or dealer's cards, you may use accumulation.
- Bonus:
  - For each ace card (1), the player can choose the value to be either 1 or 11.
  - Get the value of the ace card from the input.

```
Your new card is 1
Do you want the value of the ace card (1) to be 1 or 11?
Type 1 for the value 1, 11 for the value 11
11
```

EECS 10 Discussion 6, July, 2015

(c) 2015 Guantao Liu

7

## Assignment Discussion

- Assumption: All the user inputs are valid.
- Text file
  - Briefly describe your implementation
  - What is the input? What is the output?
  - What is the control flow of your program?
- Typescript
  - Compilation of the program
  - Run your program at least twice so that you and the dealer win at least one time each.
- Name your files as **blackjack.c**, **blackjack.txt**, and **blackjack.script**.

EECS 10 Discussion 6, July, 2015

(c) 2015 Guantao Liu

8