

## Project 2 – Philip Cesani

### Design and Implementation:

The code is written in C. There are 4 “player” functions which simulate the actions of the players, all functions operate similarly, and there is one dealer function which simulates the actions of the dealer. Each of the functions is ran through a thread created in main. There are 5 mutex variables, and 5 condition variables, one for each of the functions. 4 of the mutex and 4 conditions are reserved for the players and allow the threads to signal other players turns and allow the threads to wait for their turn. The dealer mutex and condition is used to tell the dealer to wait for a player to tell him the game is over. Other design and implementation information can be found in the comments of the code.

### To run:

Use the command “gcc pro2\_pac109.c -lpthread” to compile the code, and “./a.out” to run it.

### Results:

#### Run 1 – Seed = 1:

Player B: gets 6 and 2 with a sum of 8

Player C: gets 6 and 6 with a sum of 12

Player D: gets 2 and 6 with a sum of 8

DEALER: The winning team is B and D

#### Run 2 – Seed = 0:

Player A: gets 1 and 1 with a sum of 2

Player B: gets 5 and 4 with a sum of 9

Player C: gets 5 and 4 with a sum of 9

Player D: gets 5 and 3 with a sum of 8

Player A: gets 2 and 4 with a sum of 6

Player B: gets 5 and 6 with a sum of 11

Player C: gets 4 and 3 with a sum of 7

Player D: gets 3 and 5 with a sum of 8

Player A: gets 4 and 4 with a sum of 8

Player B: gets 3 and 2 with a sum of 5

Player C: gets 5 and 6 with a sum of 11

Player D: gets 5 and 5 with a sum of 10

Player A: gets 2 and 6 with a sum of 8

Player B: gets 1 and 3 with a sum of 4

Player C: gets 6 and 2 with a sum of 8

DEALER: The winning team is A and C

Run 3 – Seed = 0:

Player A: gets 6 and 3 with a sum of 9

Player B: gets 4 and 2 with a sum of 6

Player C: gets 4 and 6 with a sum of 10

Player D: gets 1 and 5 with a sum of 6

DEALER: The winning team is B and D

Run 4 – Seed = 2:

Player C: gets 5 and 6 with a sum of 11

Player D: gets 2 and 2 with a sum of 4

Player A: gets 6 and 5 with a sum of 11

DEALER: The winning team is A and C

Run 5 – Seed = 3:

Player D: gets 2 and 4 with a sum of 6

Player A: gets 1 and 5 with a sum of 6

Player B: gets 1 and 3 with a sum of 4

Player C: gets 4 and 4 with a sum of 8

Player D: gets 5 and 2 with a sum of 7

Player A: gets 4 and 3 with a sum of 7

Player B: gets 1 and 2 with a sum of 3

Player C: gets 4 and 2 with a sum of 6

Player D: gets 1 and 6 with a sum of 7

Player A: gets 1 and 1 with a sum of 2

Player B: gets 5 and 5 with a sum of 10

Player C: gets 4 and 4 with a sum of 8

Player D: gets 6 and 1 with a sum of 7

Player A: gets 4 and 4 with a sum of 8

DEALER: The winning team is A and C