

MAS1343: Monopoly

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- Practical 1 – personalised feedback sheet available to download – see MAS1343 webpage, "Practicals" section
- Practical 2 – work in the MAS1343 box outside the General Office, ready to collect
- Practical 3 – being marked as we speak
- Practical 4: Monopoly!
 - Practical yesterday
 - Today's lecture
 - Practical next week
 - Drop-in next Thursday

MAS1343: Monopoly



- Helper function 1: `RollTwoDice` – gives the sum of the two outcomes – move forward by this sum!

- `landings` – numeric vector of length 40:

```
> landings=numeric(40)
> landings
 [1] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
[39] 0 0
```

- Each time you land on square j , `landings[j]` will increase by 1

■ Main Monopoly simulation function:

```
SimulateMonopoly = function(no_of_rolls) {  
  landings = numeric(40)  
  #Start at GO  
  current = 1  
  for(i in 1:no_of_rolls) {  
    current = current + RollTwoDice()  
    if(current > 40) {  
      current = current - 40  
    }  
    landings[current] = landings[current] + 1  
  }  
  return(landings)  
}  
no_of_rolls = 50000  
sim = SimulateMonopoly(no_of_rolls)
```

- Could be more efficient ways of writing this – e.g. use of %%
- Returns an updated `landings` vector, to show where we landed after multiple runs of the function
- Aim: find out which square(s) we are more/less likely to land on...

■ Helper function 2: CommunityChest

```
CommunityChest = function(current) {  
  goto = current  
  u = runif(1)  
  if(u < 1/16) {  
    goto = 1#Move to Go  
  }else if(u < 2/16) {  
    goto = 11#Go To Jail  
  }  
  return(goto)  
}
```

- 16 cards – Most options give financial rewards – we will ignore these
- This leaves:
 - Move to "Go"
 - Go to "Jail"
 - Go to "Old Kent Road" (+7%)
 - Take a "Chance" card (+10%)
- Need to add in the other two Community Chest squares (+7%)

■ Helper function 3: `Chance`

- 16 cards, 8 of which involve money (so ignore)
- 3 Chance squares on the board
- Implement the first 6 cards (+10%)
- Add in chance cards 7 and 8 (+20%)

- Helper function 4: `RollDouble?` Or amendment to `RollTwoDice?`
- Code presentation/style