Quiz 5 Question

```r
friends_df <- data.frame(
  People_who_measure = c('Ash', 'Jacki', 'Matt','Mike','Rol'),
  people_1 = c(175, 176, 174,180,181),
  people_2 = c(173, 174, 173,179.3,180),
  people_3 = c(176, 175, 175,180,179),
  people_4 = c(174, 175, 176,180,180),
  people_5 = c(173, 175, 174,179.2,179),
  people_6 = c(175, 176, 174,180,181),
  people_7 = c(173, 174, 173,179.3,180),
  people_8 = c(176, 175, 175,180,179),
  people_9 = c(174, 175, 176,180,180),
  people_10 = c(173, 175, 174,179.2,179),
  people_11 = c(175, 176, 174,180,181),
  people_12 = c(173, 174, 173,179.3,180),
  people_13 = c(176, 175, 175,180,179),
  people_14 = c(174, 175, 176,180,180),
  people_15 = c(173, 175, 174,179.2,179),
  people_16 = c(175, 176, 174,180,181),
  people_17 = c(173, 174, 173,179.3,180),
  people_18 = c(176, 175, 175,180,179),
  people_19 = c(174, 175, 176,180,180),
  people_20 = c(173, 175, 174,179.2,179)
)

friends_df
```

```
  People_who_measure people_1 people_2 people_3 people_4 people_5 people_6
1                Ash      175    173.0      176      174    173.0      175
2              Jacki      176    174.0      175      175    175.0      176
3               Matt      174    173.0      175      176    174.0      174
4               Mike      180    179.3      180      180    179.2      180
```

```
5                Rol      181    180.0      179      180    179.0      181
  people_7 people_8 people_9 people_10 people_11 people_12 people_13 people_14
1    173.0      176      174     173.0       175     173.0       176       174
2    174.0      175      175     175.0       176     174.0       175       175
3    173.0      175      176     174.0       174     173.0       175       176
4    179.3      180      180     179.2       180     179.3       180       180
5    180.0      179      180     179.0       181     180.0       179       180
  people_15 people_16 people_17 people_18 people_19 people_20
1     173.0       175     173.0       176       174     173.0
2     175.0       176     174.0       175       175     175.0
3     174.0       174     173.0       175       176     174.0
4     179.2       180     179.3       180       180     179.2
5     179.0       181     180.0       179       180     179.0
```

Simulation Test

Distinct test is that the distinct 5 People_who_measure

```
unique(friends_df$People_who_measure)
```

```
[1] "Ash"   "Jacki" "Matt"  "Mike"  "Rol"
```

Null value test

```
any(is.na(friends_df))
```

```
[1] FALSE
```

Test of count variables

```
ncol(friends_df)
```

```
[1] 21
```

I made the mean height of each people_who_measure(including the people of ‘Ash’, ‘Jacki’, ‘Matt’,‘Mike’,‘Rol’. The mean is count from 20 students participants.

```r
library(ggplot2)

ggplot(friends_df, aes(x = People_who_measure, y = (people_1 + people_2 + people_3 + peopl
  geom_col(position = "dodge") +
  ggtitle("Avg Height of Friends") +
  xlab("Friend's Name") +
  ylab("Avg Height (cm)")
```