

StatsLibrary

Set A: {1, 3, 5, 6, 8, 8}

Set B: {1, 2, 4, 6, 7}

Universal Set: {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

```
StatsLibrary.java StatsLibraryTester.java Console
<terminated> StatsLibraryTester [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_261.jdk/Contents/Home/bin/java (Oct 31, 2023 2:06:58 AM - 2:06:58 AM)
Mean (Set A) = 5.166666666666667
Mean (Set B) = 4.0
Median (Set A) = 5.5
Median (Set B) = 4.0
Mode (Set A) = 8
Mode (Set B) = null
Standard Deviation (Set A) = 2.544056253745625
Complement (Set A, Universal Set) = [2, 4, 7, 9, 10]
Intersection of Sets = [1, 6]
Union of Sets = [1, 2, 4, 6, 7, 3, 5, 8]
5! = 120
Permutation (13, 4) = 17160
Combination (13, 4) = 715
Binomial Distribution (p=0.90, q=0.20, n=8, y=5): 0.03306743999999999
Geometric Distribution (p=0.06, q=0.96, n=3): 0.053015999999999994
```

Monte's 3 Doors / Deal or No Deal Program

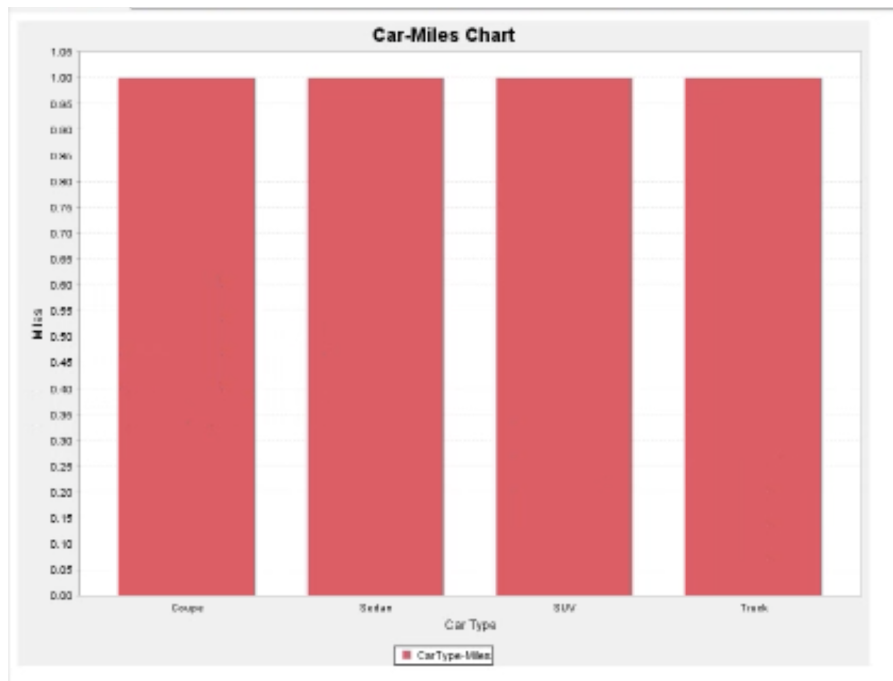
```
Console
<terminated> MontyHall [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_261.jdk/Contents/Home/bin/java (Oct 31, 2023 2:46:34 AM - 2:46:35 AM)
Percentage of winning when door is not changed: 0.336
Percentage of winning when door is changed everytime: 0.6601
```

Birthday Checker

```
Enter class size: 28
Enter number of runs: 5
Probability of at least two people sharing a birthday in a class of 28 is: 0.8
```

CarFactory

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R |
|------|-------|------|--------|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 969 | Truck | 1990 | Black | 123141 | | | | | | | | | | | | | | |
| 970 | Sedan | 1991 | White | 68610 | | | | | | | | | | | | | | |
| 971 | Sedan | 1992 | Silver | 137017 | | | | | | | | | | | | | | |
| 972 | SUV | 1993 | Red | 129204 | | | | | | | | | | | | | | |
| 973 | Coupe | 1994 | Blue | 49116 | | | | | | | | | | | | | | |
| 974 | Sedan | 1995 | Black | 103430 | | | | | | | | | | | | | | |
| 975 | SUV | 1996 | White | 115039 | | | | | | | | | | | | | | |
| 976 | Sedan | 1997 | Silver | 163219 | | | | | | | | | | | | | | |
| 977 | SUV | 1998 | Red | 77861 | | | | | | | | | | | | | | |
| 978 | Sedan | 1999 | Blue | 107045 | | | | | | | | | | | | | | |
| 979 | Truck | 2000 | Black | 155814 | | | | | | | | | | | | | | |
| 980 | Coupe | 2001 | White | 100518 | | | | | | | | | | | | | | |
| 981 | SUV | 2002 | Silver | 94433 | | | | | | | | | | | | | | |
| 982 | SUV | 2003 | Red | 85175 | | | | | | | | | | | | | | |
| 983 | Truck | 2004 | Blue | 59017 | | | | | | | | | | | | | | |
| 984 | Truck | 2005 | Black | 144196 | | | | | | | | | | | | | | |
| 985 | SUV | 2006 | White | 242420 | | | | | | | | | | | | | | |
| 986 | SUV | 2007 | Silver | 22823 | | | | | | | | | | | | | | |
| 987 | SUV | 2008 | Red | 156387 | | | | | | | | | | | | | | |
| 988 | Sedan | 2009 | Blue | 127951 | | | | | | | | | | | | | | |
| 989 | Coupe | 2010 | Black | 43160 | | | | | | | | | | | | | | |
| 990 | Sedan | 2011 | White | 148905 | | | | | | | | | | | | | | |
| 991 | Coupe | 2012 | Silver | 110269 | | | | | | | | | | | | | | |
| 992 | Sedan | 2013 | Red | 207992 | | | | | | | | | | | | | | |
| 993 | Sedan | 2014 | Blue | 1037 | | | | | | | | | | | | | | |
| 994 | Coupe | 2015 | Black | 83779 | | | | | | | | | | | | | | |
| 995 | Sedan | 2016 | White | 166363 | | | | | | | | | | | | | | |
| 996 | SUV | 2017 | Silver | 104108 | | | | | | | | | | | | | | |
| 997 | Coupe | 2018 | Red | 230978 | | | | | | | | | | | | | | |
| 998 | SUV | 2019 | Blue | 176928 | | | | | | | | | | | | | | |
| 999 | Truck | 2020 | Black | 153772 | | | | | | | | | | | | | | |
| 1000 | Sedan | 2021 | White | 215050 | | | | | | | | | | | | | | |
| 1001 | Sedan | 2022 | Silver | 111141 | | | | | | | | | | | | | | |
| 1002 | | | | | | | | | | | | | | | | | | |



Hands

*** Probability Results for hand of 5 cards !!! ***

Pair Count : 0.482

Three of a Kind : 0.021

Four of a Kind : 0.000

Straight : 0.002

Flush : 0.002

Full House : 0.001

Straight Flush : 0.000

Royal Flush : 0.000

High Card : 0.493

Pair Count : 0.482

Three of a Kind : 0.021

Four of a Kind : 0.000

Straight : 0.002

Flush : 0.002

Full House : 0.001

Straight Flush : 0.000

Royal Flush : 0.000

High Card : 0.493

result

| Hand Size | Hand Type | Probability |
|-----------|-----------------|-------------|
| 3 | Pair | 0.171 |
| 3 | Three of a Kind | 0.003 |
| 3 | Four of a Kind | 0.000 |
| 3 | Straight | 0.000 |
| 3 | Flush | 0.054 |
| 3 | Full House | 0.000 |
| 3 | Straight Flush | 0.000 |
| 3 | Royal Flush | 0.000 |
| 3 | High Card | 0.773 |
| 5 | Pair | 0.472 |
| 5 | Three of a Kind | 0.019 |
| 5 | Four of a Kind | 0.000 |
| 5 | Straight | 0.002 |
| 5 | Flush | 0.002 |
| 5 | Full House | 0.002 |
| 5 | Straight Flush | 0.000 |
| 5 | Royal Flush | 0.000 |
| 5 | High Card | 0.503 |
| 7 | Pair | 0.716 |
| 7 | Three of a Kind | 0.051 |
| 7 | Four of a Kind | 0.002 |
| 7 | Straight | 0.010 |
| 7 | Flush | 0.000 |