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#exl2.9(a)
```
> set.seed(12345)
> number <- sample(0:100, 1000, replace=T)
```

#exl2.53
```
> mtcars
```

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am
Mazda RX4	21.0	6	160.0	110	3.90	2.620	16.46	0	1
Mazda RX4 Wag	21.0	6	160.0	110	3.90	2.875	17.02	0	1
Datsun 710	22.8	4	108.0	93	3.85	2.320	18.61	1	1
Hornet 4 Drive	21.4	6	258.0	110	3.08	3.215	19.44	1	0
Hornet Sportabout	18.7	8	360.0	175	3.15	3.440	17.02	0	0
Valiant	18.1	6	225.0	105	2.76	3.460	20.22	1	0
Duster 360	14.3	8	360.0	245	3.21	3.570	15.84	0	0
Merc 240D	24.4	4	146.7	62	3.69	3.190	20.00	1	0
Merc 230	22.8	4	140.8	95	3.92	3.150	22.90	1	0
Merc 280	19.2	6	167.6	123	3.92	3.440	18.30	1	0
Merc 280C	17.8	6	167.6	123	3.92	3.440	18.90	1	0
Merc 450SE	16.4	8	275.8	180	3.07	4.070	17.40	0	0
Merc 450SL	17.3	8	275.8	180	3.07	3.730	17.60	0	0
Merc 450SLC	15.2	8	275.8	180	3.07	3.780	18.00	0	0
Cadillac Fleetwood	10.4	8	472.0	205	2.93	5.250	17.98	0	0
Lincoln Continental	10.4	8	460.0	215	3.00	5.424	17.82	0	0
Chrysler Imperial	14.7	8	440.0	230	3.23	5.345	17.42	0	0
Fiat 128	32.4	4	78.7	66	4.08	2.200	19.47	1	1
Honda Civic	30.4	4	75.7	52	4.93	1.615	18.52	1	1
Toyota Corolla	33.9	4	71.1	65	4.22	1.835	19.90	1	1
Toyota Corona	21.5	4	120.1	97	3.70	2.465	20.01	1	0
Dodge Challenger	15.5	8	318.0	150	2.76	3.520	16.87	0	0
AMC Javelin	15.2	8	304.0	150	3.15	3.435	17.30	0	0
Camaro Z28	13.3	8	350.0	245	3.73	3.840	15.41	0	0
Pontiac Firebird	19.2	8	400.0	175	3.08	3.845	17.05	0	0
Fiat X1-9	27.3	4	79.0	66	4.08	1.935	18.90	1	1
Porsche 914-2	26.0	4	120.3	91	4.43	2.140	16.70	0	1
Lotus Europa	30.4	4	95.1	113	3.77	1.513	16.90	1	1
Ford Pantera L	15.8	8	351.0	264	4.22	3.170	14.50	0	1

Ferrari Dino	19.7	6	145.0	175	3.62	2.770	15.50	0	1
Maserati Bora	15.0	8	301.0	335	3.54	3.570	14.60	0	1
Volvo 142E	21.4	4	121.0	109	4.11	2.780	18.60	1	1

	gear	carb
Mazda RX4	4	4
Mazda RX4 Wag	4	4
Datsun 710	4	1
Hornet 4 Drive	3	1
Hornet Sportabout	3	2
Valiant	3	1
Duster 360	3	4
Merc 240D	4	2
Merc 230	4	2
Merc 280	4	4
Merc 280C	4	4
Merc 450SE	3	3
Merc 450SL	3	3
Merc 450SLC	3	3
Cadillac Fleetwood	3	4
Lincoln Continental	3	4
Chrysler Imperial	3	4
Fiat 128	4	1
Honda Civic	4	2
Toyota Corolla	4	1
Toyota Corona	3	1
Dodge Challenger	3	2
AMC Javelin	3	2
Camaro Z28	3	4
Pontiac Firebird	3	2
Fiat X1-9	4	1
Porsche 914-2	5	2
Lotus Europa	5	2
Ford Pantera L	5	4
Ferrari Dino	5	6
Maserati Bora	5	8
Volvo 142E	4	2

```
> lapply(mtcars[3:7], mean)
$disp
[1] 230.7219
```

$hp
[1] 146.6875

$drat
[1] 3.596563

$wt
[1] 3.21725

$qsec
[1] 17.84875


```
#exl2.62(a)
> type <- c("剪刀", "石頭", "布")
> computer <- sample(type, 1)
> computer
[1] "石頭"

#exl2.62(b)
> cat("請輸入你要出的拳頭(a: 剪刀, b: 石頭, c: 布, d: 不玩了):")
請輸入你要出的拳頭(a: 剪刀, b: 石頭, c: 布, d: 不玩了):> x <- scan(what = "character", nmax =
1, quiet = T)
1: player <- switch(x, a="剪刀", b="石頭", c="布", d="不玩了")
> cat("玩家出：", player)
玩家出：
#exl2.62(c)
> game <- function(){
+     cat("### 剪刀石頭布遊戲開始 ###", "\n")
+     repeat{
+         type <- c("剪刀", "石頭", "布")
+         computer <- sample(type, 1)
+
+         cat("請輸入你要出的拳頭(a: 剪刀, b: 石頭, c: 布, d: 不玩了):")
+         x <- scan(what = "character", nmax = 1, quiet = T)
+         player <- switch(x, a="剪刀", b="石頭", c="布", d="不玩了")
+
+         result <- "平手"
+         if((computer=="剪刀" & player=="布") |
```

```
+          (computer=="石頭" & player=="剪刀") |
+          (computer=="布" & player=="石頭")){
+       result <- "輸"
+     }else if((computer=="剪刀" & player=="石頭") |
+               (computer=="石頭" & player=="布") |
+               (computer=="布" & player=="剪刀")){
+       result <- "贏"
+     }
+
+     if(player=="不玩了"){
+       cat("謝謝再會!")
+       break
+     }else{
+       cat("電腦出[", computer, "], 你出[", player ,"], 你[ ", result," ]了!\n\n")
+     }
+   }
+ }

> set.seed(12345)
> game()
### 剪刀石頭布遊戲開始 ###
請輸入你要出的拳頭(a: 剪刀, b: 石頭, c: 布, d: 不玩了):
1: a
電腦出[ 石頭 ], 你出[ 剪刀 ], 你[　輸　]了!

請輸入你要出的拳頭(a: 剪刀, b: 石頭, c: 布, d: 不玩了):
1: b
電腦出[ 布 ], 你出[ 石頭 ], 你[　輸　]了!

請輸入你要出的拳頭(a: 剪刀, b: 石頭, c: 布, d: 不玩了):
1: c
電腦出[ 石頭 ], 你出[ 布 ], 你[　贏　]了!

請輸入你要出的拳頭(a: 剪刀, b: 石頭, c: 布, d: 不玩了):
1: d
謝謝再會!
```