

R Objects, Workflow, and Functions

if/then/else

Fizz buzz challenge - take in a number - if it is divisible by 3 return fizz - if it is divisible by 5 return buzz - if it is divisible by 15 return fizz buzz

```
number <- 15
if((number %% 15) == 0) {
  print("fizz buzz")
} else if ((number %% 5) == 0) {
  print ("buzz")
} else if ((number %% 3) == 0) {
  print("fizz")
} else {
  print("whoops?")
}
```

```
[1] "fizz buzz"
```

```
#if(!(number %% 15))
```

Loops

Wrap the fizz buzz code into a loop to check for multiple values.

```
for(number in -1:41){
  if((number %% 15) == 0) {
    print("fizz buzz")
  } else if ((number %% 5) == 0) {
    print ("buzz")
  }
}
```

```

    } else if ((number %% 3) == 0) {
        print("fizz")
    } else {
        print("whoops?")
    }
}

```

```

[1] "whoops?"
[1] "fizz buzz"
[1] "whoops?"
[1] "whoops?"
[1] "fizz"
[1] "whoops?"
[1] "buzz"
[1] "fizz"
[1] "whoops?"
[1] "whoops?"
[1] "fizz"
[1] "buzz"
[1] "whoops?"
[1] "fizz"
[1] "whoops?"
[1] "whoops?"
[1] "fizz buzz"
[1] "whoops?"
[1] "whoops?"
[1] "fizz"
[1] "whoops?"
[1] "buzz"
[1] "fizz"
[1] "whoops?"
[1] "whoops?"
[1] "fizz"
[1] "buzz"
[1] "whoops?"
[1] "fizz"
[1] "whoops?"
[1] "whoops?"
[1] "fizz buzz"
[1] "whoops?"
[1] "whoops?"
[1] "fizz"

```

```

[1] "whoops?"
[1] "buzz"
[1] "fizz"
[1] "whoops?"
[1] "whoops?"
[1] "fizz"
[1] "buzz"
[1] "whoops?"

```

Writing R Functions

Normal approximation to the binomial

```

n <- 40
prob <- 0.3
#probabilities from a binomial RV
dbinom(0:n, size = n, prob = prob)

```

```

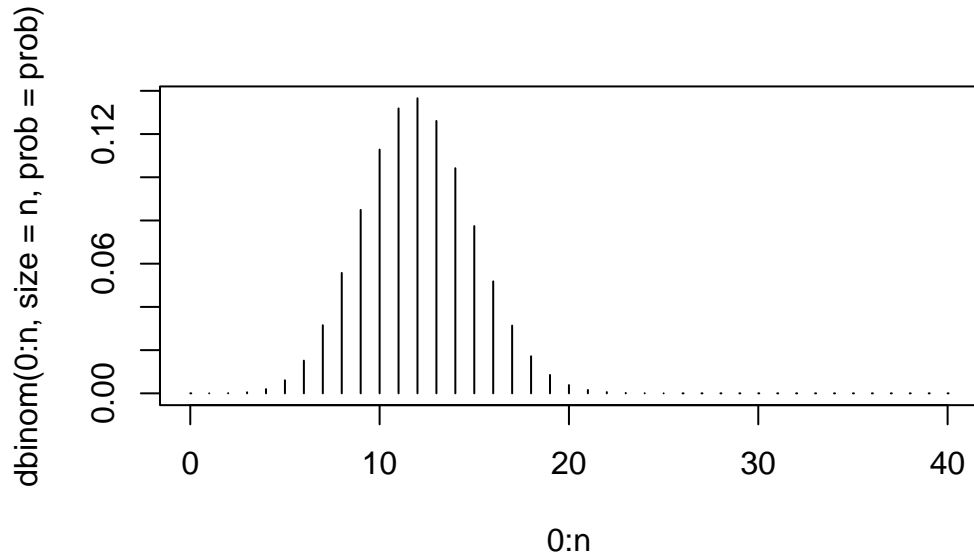
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[6] 6.057157e-03 1.514289e-02 3.152194e-02 5.572629e-02 8.491625e-02
[11] 1.128173e-01 1.318644e-01 1.365738e-01 1.260681e-01 1.041992e-01
[16] 7.740510e-02 5.183378e-02 3.136161e-02 1.717422e-02 8.522543e-03
[21] 3.835144e-03 1.565365e-03 5.793884e-04 1.943290e-04 5.899274e-05
[26] 1.618087e-05 4.000763e-06 8.890585e-07 1.769045e-07 3.137223e-08
[31] 4.929921e-09 6.815560e-10 8.215184e-11 8.535256e-12 7.531108e-13
[36] 5.533059e-14 3.293487e-15 1.525940e-16 5.162955e-18 1.134715e-19
[41] 1.215767e-21

```

```

#plot with plot
plot(0:n,
     dbinom(0:n, size = n, prob = prob),
     type = "h")

```



```
norm_x <- seq(from = 0, to = n, length = 1000)
dnorm(norm_x, mean = n * prob, sd = sqrt(n * prob * (1 - prob)))
```

```
[1] 2.607632e-05 2.760874e-05 2.922563e-05 3.093131e-05 3.273029e-05
[6] 3.462729e-05 3.662725e-05 3.873533e-05 4.095691e-05 4.329765e-05
[11] 4.576343e-05 4.836040e-05 5.109499e-05 5.397391e-05 5.700417e-05
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