# Class06: R functions

Jessica PID A15647602

```
add <- function(x, y = 1){
  x + y
}
```

Can I use it?

```
add(1,1)
```

```
[1] 2
```

```
add(x = 1, y = 100)
```

```
[1] 101
```

```
add(c(100, 1, 100), y = 1)
```

```
[1] 101   2 101
```

```
add(1, 1)
```

```
[1] 2
```

Q. Make a function; `generate_DNA()` that makes a random nucleotide sequence of any length

```
generate_DNA <- function(){

bases <- c("A", "T", "C", "G")
sequence <- sample(bases, size = 10, replace = TRUE)
}
```

That is my working snipet now i can make a function.

```
generate_DNA <- function(length){
  bases <- c("A", "T", "C", "G")
  sequence <- sample(bases, size = length, replace = TRUE)
  return(sequence)
}
```

```
generate_DNA(15)
```

```
 [1] "G" "A" "C" "G" "A" "T" "G" "G" "T" "A" "T" "C" "T" "G" "T"
```

```
aa <- unique(bio3d::aa.table$aa1)[1:20]
```

```
generate_protein <- function(length){
  amino_acids<- c(aa)
  protein_sequence <- sample(amino_acids, size = length, replace = TRUE)
  protein_sequence <- paste(protein_sequence, collapse = "") #added to remove space
   return(protein_sequence)
  }
```

```
generate_protein(10)
```

```
[1] "YHPSFVCHQM"
```

Q. Generate random protein sequences of length 6 to 12.

```
answer <- sapply(6:12, generate_protein)
answer
```

```
[1] "AYCEHN"       "MANNLVS"      "SLDCTQWL"     "NEHFNLLYG"    "SMEKDKFHFY"
[6] "RYAHHNSWHMM"  "YEKESWNRNGSM"
```

```
cat( paste(">id.", 6:12, "\n",  answer, sep = ""), sep = "\n")
```

```
>id.6
AYCEHN
>id.7
MANNLVS
```

```
>id.8
SLDCTQWL
>id.9
NEHFNLLYG
>id.10
SMEKDKFHFY
>id.11
RYAHHNSWHMM
>id.12
YEKESWNRNGSM
```