Class06 10.18.24

Tim

```r
ADD <- function (x,y) {x + y}
```

```r
ADD(1,1)
```

```
[1] 2
```

```r
ADD(x=1, y=100)
```

```
[1] 101
```

```r
ADD(c(100,1,100),1)
```

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

```r
add <- function (x,y=1) {x + y}
add(10)
```

```
[1] 11
```

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

```
[1] 2
```

Q. make a function "GENERATE_DNA()" that makes a random nucluotide seq of any length

a second function

```
bases<- c("A", "C", "G","T")
sequence <- sample(bases, size=5, replace = TRUE)
```

```
generate_dna <- sample(bases, size=100, replace = TRUE, prob = NULL)
generate_dna
```

```
 [1] "A" "C" "A" "A" "T" "A" "G" "A" "G" "T" "A" "A" "A" "T" "C" "A" "C" "C"
[19] "A" "C" "A" "C" "G" "G" "T" "T" "G" "T" "A" "A" "C" "C" "C" "A" "A" "G"
[37] "T" "T" "T" "C" "A" "T" "C" "A" "G" "C" "C" "C" "C" "G" "G" "C" "G" "T"
[55] "G" "G" "A" "C" "A" "C" "T" "G" "C" "C" "T" "G" "T" "T" "G" "T" "C" "T"
[73] "T" "T" "C" "A" "G" "T" "C" "G" "G" "A" "C" "G" "A" "G" "G" "T" "C" "A"
[91] "A" "C" "C" "G" "C" "A" "T" "A" "T" "A"
```

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

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

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

```
generate_protien(6)
```

```
[1] "GGQILK"
```

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

```
[1] "MNQNKE"       "DCTEYLH"      "STLCMGFE"     "GVGDPCNHT"    "CQYVCHNVEL"
[6] "GCWCCLTILQC"  "WWTIWPLYMKYS"
```

```r
paste(">id.",6:12)
```

```
[1] ">id. 6"  ">id. 7"  ">id. 8"  ">id. 9"  ">id. 10" ">id. 11" ">id. 12"
```

```r
paste(">id.",6:12, sep = "")
```

```
[1] ">id.6"  ">id.7"  ">id.8"  ">id.9"  ">id.10" ">id.11" ">id.12"
```

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

```
[1] ">id.6\nMNQNKE"        ">id.7\nDCTEYLH"        ">id.8\nSTLCMGFE"
[4] ">id.9\nGVGDPCNHT"     ">id.10\nCQYVCHNVEL"    ">id.11\nGCWCCLTILQC"
[7] ">id.12\nWWTIWPLYMKYS"
```

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

```
>id.6
MNQNKE >id.7
DCTEYLH >id.8
STLCMGFE >id.9
GVGDPCNHT >id.10
CQYVCHNVEL >id.11
GCWCCLTILQC >id.12
WWTIWPLYMKYS
```

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

```
>id. 6
 MNQNKE
>id. 7
 DCTEYLH
>id. 8
 STLCMGFE
>id. 9
 GVGDPCNHT
>id. 10
 CQYVCHNVEL
>id. 11
 GCWCCLTILQC
>id. 12
 WWTIWPLYMKYS
```

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

>id.6
MNQNKE
>id.7
DCTEYLH
>id.8
STLCMGFE
>id.9
GVGDPCNHT
>id.10
CQYVCHNVEL
>id.11
GCWCCLTILQC
>id.12
WWTIWPLYMKYS


```
```