STAT 400 - Discussion 2

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Loading in the data

```
set_a <- data.frame(
  Name = c("Alice", "Bob", "Charlie", "David", "Eva"),
  Age = c(25, 30, 35, 40, 45)
)

set_b <- data.frame(
  Name = c("Charlie", "David", "Frank", "Grace"),
  Age = c(35, 40, 50, 55)
)
```

Union - By hand

```
# Union: Combine all unique rows from both sets
union_result <- unique(rbind(set_a, set_b))

# Print results
print("Union Result:")
```

```
[1] "Union Result:"
```

```
print(union_result)
```

```
     Name Age
1   Alice  25
```

```
2     Bob  30
3 Charlie  35
4   David  40
5     Eva  45
8   Frank  50
9   Grace  55
```

Union - Function

```
union_result_2 <- union(set_a$Name, set_b$Name)
print(union_result_2)
```

```
[1] "Alice"   "Bob"     "Charlie" "David"   "Eva"     "Frank"   "Grace"
```

Intersection - By hand

```
# Intersection: Find common rows between the two sets
intersection_result <- merge(set_a, set_b)

print("Intersection Result:")
```

```
[1] "Intersection Result:"
```

```
print(intersection_result)
```

```
     Name Age
1 Charlie  35
2   David  40
```

Intersection - Function

```
intersection_result_2 <- intersect(set_a$Name, set_b$Name)
print(intersection_result_2)
```

```
[1] "Charlie" "David"
```

Permutations - By hand

```
n <- 25
r <- 3

permutation <- factorial(n) / factorial(n-r)
cat("Permuations: ", permutation)
```

```
Permuations:  13800
```

Permutations - Function

```
library(gtools)

test_set <- c(1:5)
permutations_2 <- permutations(n=3, r=2, v=test_set)
print(permutations_2)
```

```
     [,1] [,2]
[1,]    1    2
[2,]    1    3
[3,]    2    1
[4,]    2    3
[5,]    3    1
[6,]    3    2
```