



INTRODUCTION TO R FOR FINANCE

# **What is a factor?**

# Stocks or bonds?

Investment
stock = 2
bond = 1
bond = 1
stock = 2

# Factor creator

```
> answers <- c("stock", "bond", "bond", "stock")  
  
> investment <- factor(answers)  
  
> investment  
[1] stock bond  bond  stock  
Levels: bond stock  
  
> class(investment)  
[1] "factor"  
  
> as.integer(investment)  
[1] 2 1 1 2  
  
> levels(investment)  
[1] "bond" "stock"
```

# cut() it up

- Ranking: 1-50
- 1 is worst, 50 is best

```
> head(ranking)
[1] 36 45 32 10 42 8

> buckets <- c(0, 10, 20, 30, 40, 50)

> ranking_grouped <- cut(ranking, breaks = buckets)

> head(ranking_grouped)
[1] (30,40] (40,50] (30,40] (0,10] (40,50] (0,10]
Levels: (0,10] (10,20] (20,30] (30,40] (40,50]
```



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**Let's practice!**

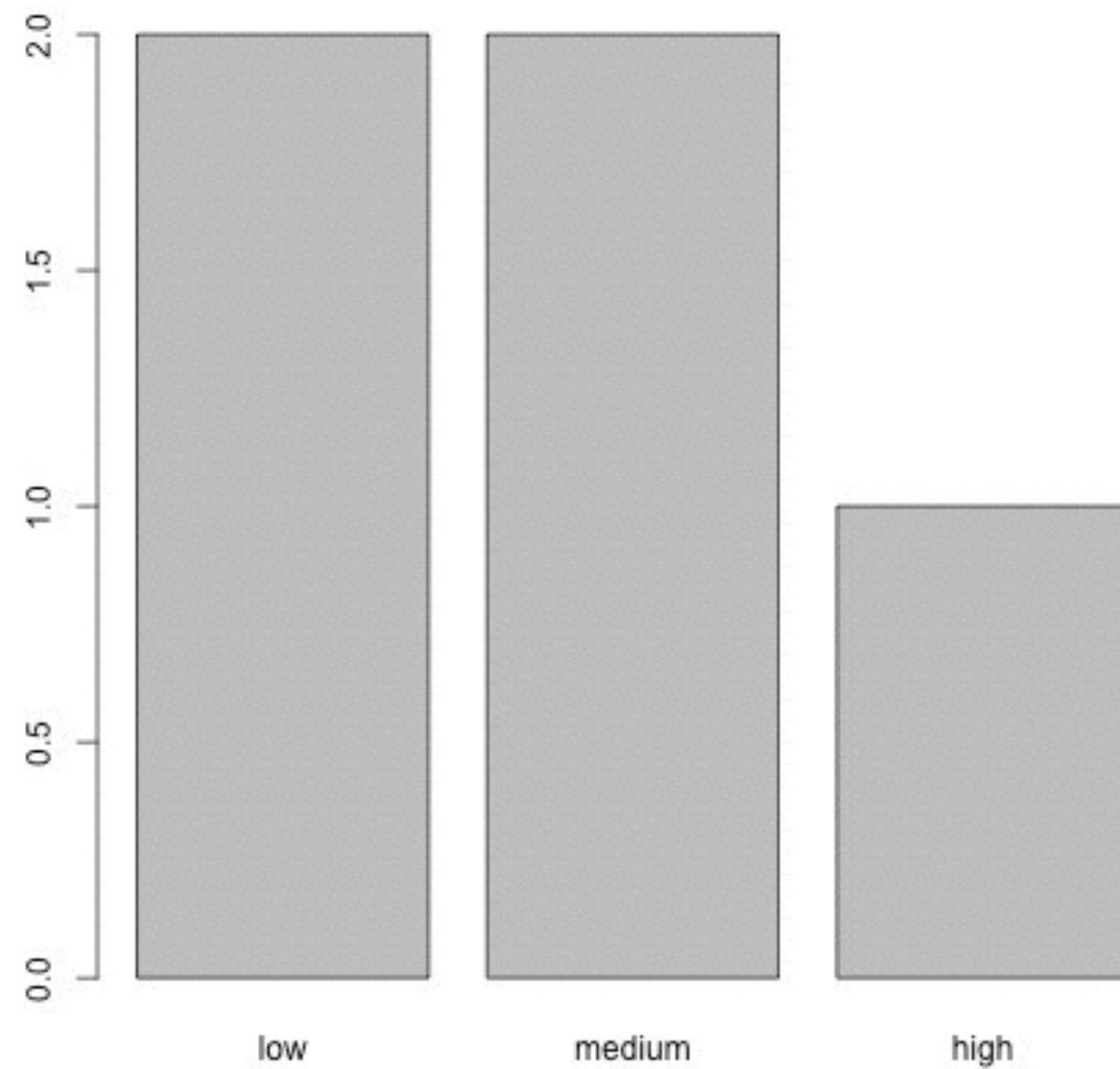


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# Ordering and subsetting factors

# Order it

Low < Medium < High



# How to order?

```
> rank <- c("low", "medium", "low", "medium", "high")

> rank_wrong_order <- ordered(rank)

> rank_wrong_order
[1] low      medium low      medium high
Levels: high < low < medium

> rank_order <- factor(rank, ordered = TRUE,
                        levels = c("low", "medium", "high"))

> rank_order
[1] low      medium low      medium high
Levels: low < medium < high

> summary(rank_order)
  low medium  high
    2     2     1
```



# Factor subsets

```
> # Only low
> rank_order[c(1,3)]
[1] low low
Levels: low < medium < high

> summary(rank_order[c(1,3)])
  low medium  high 
    2      0     0 

> # Only low, drop medium and high levels
> rank_order[c(1,3), drop = TRUE]
[1] low low
Levels: low

> summary(rank_order[c(1,3), drop = TRUE])
low
 2
```



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**Let's practice!**