20250512_01

May 12, 2025

[1]:
```
x = 10
y = 5

print(x)
print(y)
```

```
[1] 10
[1] 5
```

[7]:
```
scores = c(85, 70, 95, 55)
names = c("Alice", "Bob", "Cindy", "David")
passed = c(TRUE, TRUE, TRUE, FALSE)

print(scores)
print(names)
print(passed)
```

```
[1] 85 70 95 55
[1] "Alice" "Bob"   "Cindy" "David"
[1]  TRUE  TRUE  TRUE FALSE
```

[11]:
```
length(scores)
class(scores)
summary(scores)
```

4

'numeric'

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max. 
  55.00   66.25   77.50   76.25   87.50   95.00 
```

[33]:
```
#Exercise
age = c(23, 25, 19, 31, 28)
name = c("Ann", "Ben", "Carl", "Dora", "Eric")

length(age) #Expected: 5
class(name) #Expected: strings or something like that
summary(age) #Expected: min 19, 1st Qu. ,? Median 25, Mean 25.2, 3rd Qu. ?, Max␣
↪31
```

5

'character'

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
   19.0    23.0    25.0    25.2    28.0    31.0
```

[15]:
```
my_list = list(name = "Jason",
               age = 22,
               scores = c(90, 95, 100),
               passed = TRUE)
```

[47]:
```
my_list$name
my_list[['scores']]
my_list['age']
```

'Jason'

1. 90 2. 95 3. 100

$age = 22

[35]:
```
students = data.frame(id = 1:3,
                      name = c("Alice", "Ben", "Carol"),
                      score = c(90, 85, 80),
                      passed = c(TRUE, TRUE, FALSE))
```

[43]:
```
head(students)
str(students)
summary(students)
```

A data.frame: 3 × 4

	id <int>	name <chr>	score <dbl>	passed <lgl>
1	1	Alice	90	TRUE
2	2	Ben	85	TRUE
3	3	Carol	80	FALSE

```
'data.frame':   3 obs. of  4 variables:
 $ id    : int  1 2 3
 $ name  : chr  "Alice" "Ben" "Carol"
 $ score : num  90 85 80
 $ passed: logi  TRUE TRUE FALSE
```

```
       id          name               score        passed
 Min.   :1.0   Length:3           Min.   :80.0   Mode :logical
 1st Qu.:1.5   Class :character   1st Qu.:82.5   FALSE:1
 Median :2.0   Mode  :character   Median :85.0   TRUE :2
 Mean   :2.0                      Mean   :85.0
 3rd Qu.:2.5                      3rd Qu.:87.5
 Max.   :3.0                      Max.   :90.0
```

[49]:
```r
# Exercising List
user = list(name = "Ann",
            age = 24,
            likes = c("Data", "Hiking", "Coffee"))

user$name #Expected: 'Ann'
user[["likes"]] # Expected: 'Data' 'Hiking' 'Coffee'
user["age"] #Expected: $age = 24

# Exercising DataFrame
grades = data.frame(student = c("A", "B", "C", "D"),
                    math = c(90, 85, 78, 92),
                    passed = c(TRUE, TRUE, FALSE, TRUE))

# How do I type those thing???
head(grades)
str(grades)
summary(grades)
```

'Ann'

1. 'Data' 2. 'Hiking' 3. 'Coffee'

$age = 24

A data.frame: 4 × 3

	student <chr>	math <dbl>	passed <lgl>
1	A	90	TRUE
2	B	85	TRUE
3	C	78	FALSE
4	D	92	TRUE

```
'data.frame':   4 obs. of  3 variables:
 $ student: chr  "A" "B" "C" "D"
 $ math   : num  90 85 78 92
 $ passed : logi  TRUE TRUE FALSE TRUE
```

```
   student               math         passed
 Length:4           Min.   :78.00   Mode :logical
 Class :character   1st Qu.:83.25   FALSE:1
 Mode  :character   Median :87.50   TRUE :3
                    Mean   :86.25
                    3rd Qu.:90.50
                    Max.   :92.00
```

[53]:
```r
students$name

students[["score"]]

students[1, ]
```

```
students[, 2]

students[, "passed"]

students[, c("name", "score")]
```

1. 'Alice' 2. 'Ben' 3. 'Carol'

1. 90 2. 85 3. 80

A data.frame: 1 × 4

	id <int>	name <chr>	score <dbl>	passed <lgl>
1	1	Alice	90	TRUE

1. 'Alice' 2. 'Ben' 3. 'Carol'

1. TRUE 2. TRUE 3. FALSE

A data.frame: 3 × 2

name <chr>	score <dbl>
Alice	90
Ben	85
Carol	80

[57]:
```
students[students$score > 85, ]

students[students$score > 85 & students$passed == TRUE, ]

students[students$score > 90 | students$passed == FALSE, ]
```

A data.frame: 1 × 4

	id <int>	name <chr>	score <dbl>	passed <lgl>
1	1	Alice	90	TRUE

A data.frame: 1 × 4

	id <int>	name <chr>	score <dbl>	passed <lgl>
1	1	Alice	90	TRUE

A data.frame: 1 × 4

	id <int>	name <chr>	score <dbl>	passed <lgl>
3	3	Carol	80	FALSE

[91]:
```
students = data.frame(id = 1:5,
                      name = c("Ann", "Ben", "Cathy", "Dan", "Eva"),
                      math = c(78, 92, 85, 66, 88),
                      passed = c(TRUE, TRUE, TRUE, FALSE, TRUE))

# Exercise
# 1. Show student data with scores > 80
# 2. Show only 'name' and 'passed'
# 3. Show student data with scores between 80 and 90
```

```r
students[students$math > 80,]

students[, c('name', 'passed')]

students[80 < students$math & students$math < 90,]
```

A data.frame: 3 × 4

	id	name	math	passed
	<int>	<chr>	<dbl>	<lgl>
2	2	Ben	92	TRUE
3	3	Cathy	85	TRUE
5	5	Eva	88	TRUE

A data.frame: 5 × 2

name	passed
<chr>	<lgl>
Ann	TRUE
Ben	TRUE
Cathy	TRUE
Dan	FALSE
Eva	TRUE

A data.frame: 2 × 4

	id	name	math	passed
	<int>	<chr>	<dbl>	<lgl>
3	3	Cathy	85	TRUE
5	5	Eva	88	TRUE