Build the **Best Learning Experience for R**
Build the Best Learning Experience for Data Science
# The second wave in online education

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Scalability usually comes at the expense of personalization

- One-on-one tutoring
- Small Classroom

- Online videos
- Textbooks
But technology enables personalization at scale

- One-on-one tutoring
- Small Classroom

- Online videos
- Textbooks
Arithmetic with R

In its most basic form, R can be used as a simple calculator. Consider the following arithmetic operations:

- Addition: +
- Subtraction: -
- Multiplication: *
- Division: /
- Exponentiation: ^
- Module: %%

The last two might need some explaining:

- The ^ operator raises the number to the power of the number to its right; for example, 3^2 is 9.
- The module returns the remainder of the division of the number to the left by the number on its right; for example, 3 modulo 2 is 1.

With this knowledge, follow the instructions below to complete the exercise.

Instructions

- Type `2^3` in the editor to calculate 2 to the power of 3.
- Type `28 %/% 7` to calculate 28 modulo 7.
- Click 'Submit Answer' and have a look at the R output in the console.
- Note how the # symbol is used to add comments on the R code.
Some exploratory plots of the data

Now that we have the data, let's make a scatter plot of Life Expectancy vs. Fertility for the years 1970.

Life Expectancy is the number of years a newborn infant would live if he or she were to grow up under the prevailing conditions of the time of his or her birth. It can be a measure of wealth, access to health care, and quality of life. The higher the Life Expectancy, the healthier the population. Fertility is the number of children born per woman. Both of these data are for the year 1970. The data is from the World Bank. This can be done by using the `matplotlib` library.
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~ 800 academic groups

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~ 200 companies

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Shortcomings of interactive courses

1. Fluency & knowledge retention

2. Open-ended projects
Practice mode - Fluency and knowledge retention through repetition

Select the output produced by the script

```r
p <- as.POSIXct("2011-12-05 18:59:10")
format(p, "%I:%M:%S")
```

- [ ] [1] "59:10"
- [ ] [1] "06:59 PM"
- [ ] [1] "06:59:10"
Select the output produced by the script

Following is a preview of the matrix `mat`.

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

CODE

```r
mat > 6
```

- Press 1 for `[,1] [,2] [,3]
  [1,] FALSE TRUE TRUE
  [2,] FALSE TRUE TRUE`
- Press 2 for `[,1] [,2] [,3]
  [1,] FALSE FALSE FALSE
  [2,] FALSE FALSE FALSE`
- Press 3 for `[,1] [,2] [,3]
  [1,] FALSE FALSE TRUE
  [2,] FALSE  TRUE TRUE`
Complete the script to produce the output shown

```r
x <- "7_April_1990"
(x, format = "%d_%B_%Y")
```

```
[1] "1990-04-07"
```
Complete the script to produce the output shown

```r
x <- c(8, 4, 9, 7)
for (i in x) {
  if(i %% 2 == 0) {
    print(paste(i, "is an even number"))
  } else {
    print(paste(i, "is an odd number"))
  }
}
```

Try Code (3)
Mobile - Fluency and knowledge retention through repetition
Projects should allow learners to take the skills they have learned and apply them to an end-to-end analysis on a real-world task, using real-world tools and workflows, and showcase their work.
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Task:

Real-world content: complete data science lifecycle, starting from raw data and ending in interesting insights that can be communicated.
DataCamp projects

Projects should allow learners to take the skills they have learned and apply them to an end-to-end analysis on a real-world task, using real-world tools and workflows, and showcase their work.

Tools:
RStudio, Jupyter notebooks, etc.
Projects should allow learners to take the skills they have learned and apply them to an end-to-end analysis on a real-world task, using real-world tools and workflows, and showcase their work.

Workflows:
Working locally, using git, github, etc.