



## CHALLENGE 2019

### Can you forecast fashion sales over three weeks?

1. Start by downloading our initial dataset (published on Monday April 8). It includes data for 3 months worth of sales, stock and positioning of the items on Zara's online store in a specific country.
2. The challenge will consist on making bets on certain items, choosing the ones you think that will sell more in a one-week period using the provided information to make your decision.
3. You will have to do three bets (April 15/16/17). For each bet, you will choose the items you think that will sell more in a one-week period.
4. On the second (16/04) and third day (17/04), new datasets will be published, completing the information of the dates not published on the first and second dataset, respectively.
5. To make it a little harder, items come in groups (we'll call them blocks, containing from 1 to 10 items). You will have to bet on a group of blocks including at most 50 items. Blocks will come predefined, and separate items cannot be chosen individually. **You must bet on blocks.**
6. On the second and third days of the challenge, you won't be allowed to change all blocks. You will be able to change a maximum of 20 items (items are included in blocks, you must always work with blocks). In this way your first bet becomes more important, it will be the most significant one!
7. A ranking will be published every day based on the real sales that the items in your blocks have that week. The ranking position is calculated by multiplying the product prices by the number of sales (which, in turn, is the addition of the sales in all colors and sizes).

The challenge is completely open for you to take the best decisions for your choice, but here are some tips:

- Think whether the current stock (or the potential supply of stock according to recent supplies) can cover the needs that you think there will be.
- See how the items' display impacts on sales.
- Think of the blocks as combinations. A very exciting item can be grouped with other less interesting items so it might "not be worth" choosing that block.

- Bear in mind not only the sales you think there will be but also the price in order to maximize your benefit.
- Check the recent behaviour of new items to decide whether they can be interesting, even if there is little data available.
- Think about the number of products of each chosen block, keeping in mind the exchange options that this will allow in the second and third bet.

Come up with the best ways to analyse data so you can rise on the ranking!

We won't ask you to share information on how you approached and solved the challenge while you are working on it. However, we'd love to find out when you finish, especially to share it with those who do not reach the highest positions on the ranking.

Here is an example to clarify what's published in the datasets and what needs to be done each day:

#### **Notes before the dataset:**

- Dates are always published as consecutive numbers, starting on day 0 and ending on day 91.
- In case it may be useful for your calculations, date number 0 is a Wednesday.
- Each day the stock listed is the stock available at the beginning of the day, and sales are the cumulative sales at the end of the day.
- The stock listed supplies more than one store so there might be stock variations from one day to the next due to the sales made in a different store. Anyway, it can be assumed that the listed stock is the stock available in our store to sell on that day.
- Stock data may be adjusted, either increased or decreased, in order to match reality.

#### **Publication of the initial dataset – Monday April 8:**

- Publication of the references information including price and category (family and subfamily) to which each reference belongs. (*file products.csv*)
- Publication of the blocks' composition with the references included in every block (*file product\_blocks.csv*)
- Publication of all the positioning information data for the two first months (*file positions\_day\_0\_day\_63.csv*)
- Publication of all the sales data and stock for the two first months (*file stock\_and\_sales\_day\_0\_day\_63.csv*)
- The first bet will be placed for the second week of the third month (days 71-77). Data for the first week of that month (day 64 to 70) will not be published in the initial dataset
- Publication of the positioning information of the first day of the week on which bets are placed (*file positions\_day\_71.csv*)

- Publication of the available stock and the stock receipts that will be received during that week, listing the day and the number of units received for each reference. (*file stock\_day\_71\_stock\_replenishment\_days\_72-77.csv*)

#### **First day of the challenge – Monday April 15:**

- Tell us about your chosen blocks (each block will have an ID) making sure there are no more than 50 products.
- Instructions about how to provide this blocks are shown at the end of this document
- The web page to upload your bet will be opened from 00:01 to 16:00 hours.

#### **Second day of the challenge – Tuesday April 16:**

- Publication of the ranking of the bets placed on the first day at 12:00
- Publication of all the positioning information for day 78, which is the first day of the week on which bets are placed (*file positions\_day\_0\_day\_78.csv*).
- Publication of all sales data and stocks up to day 77 (*file stock\_and\_sales\_day\_0\_day\_77.csv*). With this data you will understand where your score on the ranking comes from.
- Publication of stock available on day 78 as well as the stock receipts that will be received during that week. (*file stock\_day\_78\_stock\_replenishment\_days\_79-84.csv*)
- All this information will be published on the webpage <https://www.zaratalent.com/data.html>
- You must place your bet for the week comprising days 78 to 84.
- The web page to upload your bet will be opened from 00:01 to 16:00 hours.

#### **Third day of the challenge – Wednesday April 17:**

- Publication of the ranking of the bets placed on the second day at 12:00
- Publication of all the positioning information up to day 85, which is the first day of the week on which bets are placed. (*file positions\_day\_0\_day\_85.csv*)
- Publication of all sales data and stock up to day 84 (*file stock\_and\_sales\_day\_0\_day\_84.csv*). With this data you will understand where your score on the ranking comes from.
- Publication of stock available on day 85 as well as the stock receipts that will be received during that week. (*file stock\_day\_85\_stock\_replenishment\_days\_86-91.csv*)
- All this information will be published on the webpage <https://www.zaratalent.com/data.html>
- You must place your bet for the week comprising days 85 to 91
- The web page to upload your bet will be opened from 00:01 to 16:00 hours.

#### **End of the challenge:**

- Publication of the full dataset.
- Publication of the final ranking.

- All this information will be published on the webpage <https://www.zaratalent.com/data.html>

## HOW TO DELIVER YOUR BETS

- Each day of the challenge a new page will be enabled in HackerRank (<https://www.hackerrank.com/>) with the following URLs:
  - First day bet: [http://hr.gs/data\\_go\\_2019\\_first\\_day](http://hr.gs/data_go_2019_first_day)
  - Second day bet: [http://hr.gs/data\\_go\\_2019\\_second\\_day](http://hr.gs/data_go_2019_second_day)
  - Third day bet: [http://hr.gs/data\\_go\\_2019\\_third\\_day](http://hr.gs/data_go_2019_third_day)
- Each day you will sign up in the challenge, where there will be one unique question. When you click on the button to “Solve question”, a screen like the following will appear:

The screenshot shows the HackerRank interface for the 'Data Go! 2019 - First day bet' challenge. The top navigation bar includes 'TESTS', 'CODEPAIR', 'LIBRARY', and 'INSIGHTS'. The breadcrumb trail is 'All Tests > Data Go! 2019 - First day bet > Questions > Data Go! 2019 - First day bet > Try'. Below the breadcrumb, there is a link to 'Add english description'. The main area is a code editor for Java 8, showing the following code:

```
11 public static List<Integer> yourBetFor71_77() {
12     // Replace 1, 2, 3, 4 list by your block ids bet for first day
13     return Arrays.asList(1, 2, 3, 4);
14 }
15
16 // Then press "Run code" to check if it's a valid solution
```

At the bottom of the code editor, it says 'Line: 1 Col: 1'. Below the code editor is a green 'Run Code' button. The footer of the interface includes links for 'About', 'Privacy policy', 'Terms of Service', 'Blog', 'API', 'Quick Tour', and 'Support', along with a 'Help' button.

- The first day, you can only edit the list of the method `yourBetFor71_77`, the second day another list will appear (`yourBetFor78_84`), and the third day, the last one (`yourBetFor85_91`).
- The way to place your bets will be to replace the numbers 1, 2, 3, 4 with the identifiers of the blocks you have chosen.
- The second and third day, we will also ask you for the bets of the previous days. This platform is not checking that they are the same as you indicated the previous days, but we'll do that check, and in case you indicate different bets to the original

ones, we will eliminate your candidacy. This will be cheat as in the second and third day the published datasets will have the information to know what blocks would have been the bests on first and second day.

- After writing the bet, you can try it with the "Run Code" button, to see if it is valid and also see the score you get with it. You will see a screen like this one. Don't worry about the last text where score is rounded, the important one is the first shown.

Run Code

**Status: Compiled successfully. All test cases passed!**

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Testcase 1: Your score: 17782.83

Input [Download](#)

0

Your Output

1,2,3,4

Expected Output [Download](#)

0

Score

17800000

- When you are sure of your bet, press the "Submit code & Continue" button and then the "I am done with the test" button.