

## Revision Tue:

You are aware that sustainability is very important to leave a better world for the future. Due to this reason, while evaluating projects, you decided to consider how many of the 17 sustainable goals, which was determined by the United Nation as the 2030 target<sup>3</sup>, are supported by the project as well as existing indicators.

Add a new indicator that denotes the number of goals supported and update indicator weights as (%10, %20, %30, %35, %5) respectively. (**Hint 1:** Do not forget to update related data members.)

The updated information table is shown below.

Project ID	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5
A1	100	240	15	26	12
A2	20	407	13	11	1
A3	100	281	13	39	9
A4	80	1264	4	38	7
A5	20	1020	12	11	1
A6	100	1162	17	34	6

Scale new indicator and update credibility statement conditions as follows.

Indicator 5.  $(0 < x \leq 2)$  → REMOVED  
 $(2 < x \leq 5)$  →  $x = 20$   
 $(5 < x \leq 10)$  →  $x = 80$   
 $(10 < x)$  →  $x = 100$

Project Segment = A+ **AND** Scaled Indicator 5 = 100 **OR** 80 **OR** 20 → INVEST  
= A **AND** Scaled Indicator 5 = 100 **OR** 80 **OR** 20 → INVEST  
= B **AND** Scaled Indicator 5 = 100 **OR** 80 → INVEST  
= C **AND** Scaled Indicator 5 = 100 → INVEST  
= D → DO NOT INVEST

Create a `makeDecision` method in `Hackathon` class. It returns a 2D array of strings that holds information about the decisions. It gets projects with the credibility statement "INVEST", and creates a 2D array to hold ids, number of supported goals, and durations of projects that will be invested. (**Hint 2:** Do not forget to add the necessary accessor and mutator methods to the `Project` class.)

And the last row of the 2D array is a summary of the maximum numbers of goals supported and the maximum duration remaining to the payback period. In this row, the element of the Project ID column is "MAX:", the Goals column is the maximum number of goals supported and the Duration column is the maximum duration of projects. Lastly, call the `makeDecision` method in the `main` method and print the Investment Decision table to show the completed decision-making process results.

**Hint 3:** Arrays consist of the same type of elements.

**Note:** For the "Investment Decision" table you should only use the `System.out.print()` method to print the table name and asterisks at the beginning and the end. The rest of the table must come from the 2D array returned by the `makeDecision` method.

<sup>3</sup> "THE 17 GOALS". <https://sdgs.un.org/goals> [Accessed 11 Dec 2021]

Sample run:

Initial Table

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Project ID	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5
A1	100	240	15	26	12
A2	20	407	13	11	1
A3	100	281	13	39	9
A4	80	1264	4	38	7
A5	20	1020	12	11	1
A6	100	1162	17	34	6

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Modified Table

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Project ID	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5
A1	100	20	20	100	100
A2	20	20	20	80	1
A3	100	20	20	100	80
A4	80	100	100	100	80
A5	20	100	80	80	1
A6	100	100	20	100	80

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Final Table

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Project ID	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5	Weighted Mean	Segment	Credibility
A1	100	20	20	100	100	60.0	C	INVEST
A2	20	20	20	80	1	40.05	D	REMOVED
A3	100	20	20	100	80	59.0	D	DO NOT
INVEST								
A4	80	100	100	100	80	97.0	A	INVEST
A5	20	100	80	80	1	74.05	C	REMOVED
A6	100	100	20	100	80	75.0	B	INVEST

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Investment Decision

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ProjectID	Goals	Duration
A1	12	15
A4	7	4
A6	6	17
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MAX:	12	17

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