

Revision Wed:

In this hackathon, you can invest at most \$1,500,000. Thus, you will evaluate projects by considering the budget constraint as well as existing indicators.

Add a new static data member `MAX_INVESTABLE_AMOUNT` to the `Hackathon` class.

Add a new indicator that denotes the required amount, and update indicator weights as (%10, %15, %20, %25, %30) 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	67991
A2	20	407	13	11	860657
A3	100	281	13	39	193696
A4	80	1264	4	38	382208
A5	20	1020	12	11	958624
A6	100	1162	17	34	1140003

Scale the new indicator and update credibility statement conditions as follows.

Indicator 5. $(0 < x \leq 1000000) \rightarrow x = 100$

$(1000000 < x \leq 1500000) \rightarrow x = 80$

$(1500000 < x) \rightarrow x = 20$

Project Segment = A+ **AND** Scaled Indicator 5 = 100 **OR** 80 **OR** 20 \rightarrow INVEST

= A **AND** Scaled Indicator 5 = 100 **OR** 80 **OR** 20 \rightarrow INVEST

= B **AND** Scaled Indicator 5 = 100 **OR** 80 \rightarrow INVEST

= C **AND** Scaled Indicator 5 = 100 \rightarrow INVEST

= D \rightarrow DO NOT INVEST

Create a `makeDecision` method in `Hackathon` class. It includes two tasks. First, create a 2D array that holds information about all investable projects. It gets projects with the credibility statement "INVEST", and adds their ids, required investment amounts, and payback rates to the created array. And the last row of the 2D array is a summary of the total amount required to invest in all investable projects and the total payback amount if all investable projects have been invested. In this row, the element of the Project ID column is "TOTAL:", the Capital column is the total required investment amount and the Payback column is the amount expected to be earned from projects. Then print out the created array as the "Investable Projects" table.

Second, if the total required amount of all investable projects is more than your budget, you have to decide which projects you will invest in and create a portfolio. In portfolio creation you will use the priority of project segments. Starting from an investable project that has the segment A+ to C you will invest until your budget does not afford one more project. If the total required amount of all investable projects is less than your budget you can invest all the investable projects. Then, in both cases print out the final portfolio, total invested amount, expected payback amount, and rest of the budget.

Lastly, call the `makeDecision` method in the `main` method to show the completed decision-making process results.

Hint 2: Do not forget to add the necessary accessor and mutator methods to the `Project` class.

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

Note: For the “Investable Projects” 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.

Sample run:

Initial Table

Project ID	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5
A1	100	240	15	26	67991
A2	20	407	13	11	860657
A3	100	281	13	39	193696
A4	80	1264	4	38	382208
A5	20	1020	12	11	958624
A6	100	1162	17	34	1140003

Modified Table

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

Final Table

Project ID	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5	Weighted Mean	Segment	Credibility
A1	100	20	20	100	100	72.0	C	INVEST
A2	20	20	20	80	100	59.0	D	DO NOT
INVEST								
A3	100	20	20	100	100	72.0	C	INVEST
A4	80	100	100	100	100	98.0	A	INVEST
A5	20	100	80	80	100	83.0	B	INVEST
A6	100	100	20	100	80	78.0	B	INVEST

TASK 1

Investable Projects

ProjectID	Capital	Payback
A1	67991	26%
A3	193696	39%
A4	382208	38%

A5	958624	11%
A6	1140003	34%

TOTAL:	2742522	731506

TASK 2
We cannot invest in all projects, we have to discard some of them.
Final Portfolio: A4 A5 A1
Invested Amount: 1408823
Expected Payback Amount: 268364
Rest of Budget: 91177