I would like to present to you an application that I have created. This is an application that draws shear force and bending moment diagrams for a simply supported beam.

I will briefly describe how this program works below.

To run the program, you need to download its contents and run the 'Beleczka' class. Subsequently, SCENE 1 should be displayed.

SCENE 1 This is the panel that appears first. It contains 4 main elements marked with red rectangles.

Rectangle 1

- Here, you should enter the appropriate values in meters as shown in the diagram (Rectangle 4).
- The value of 'L' should be in the range $0\ [m] \leq L \leq 15\ [m]$.

Rectangle 2

- Here, you should enter the values of loads. The units must be consistent with what I have presented.
- The load values are in the range $-100 \leq L \leq 100$ (Units according to the diagram).

Rectangle 3

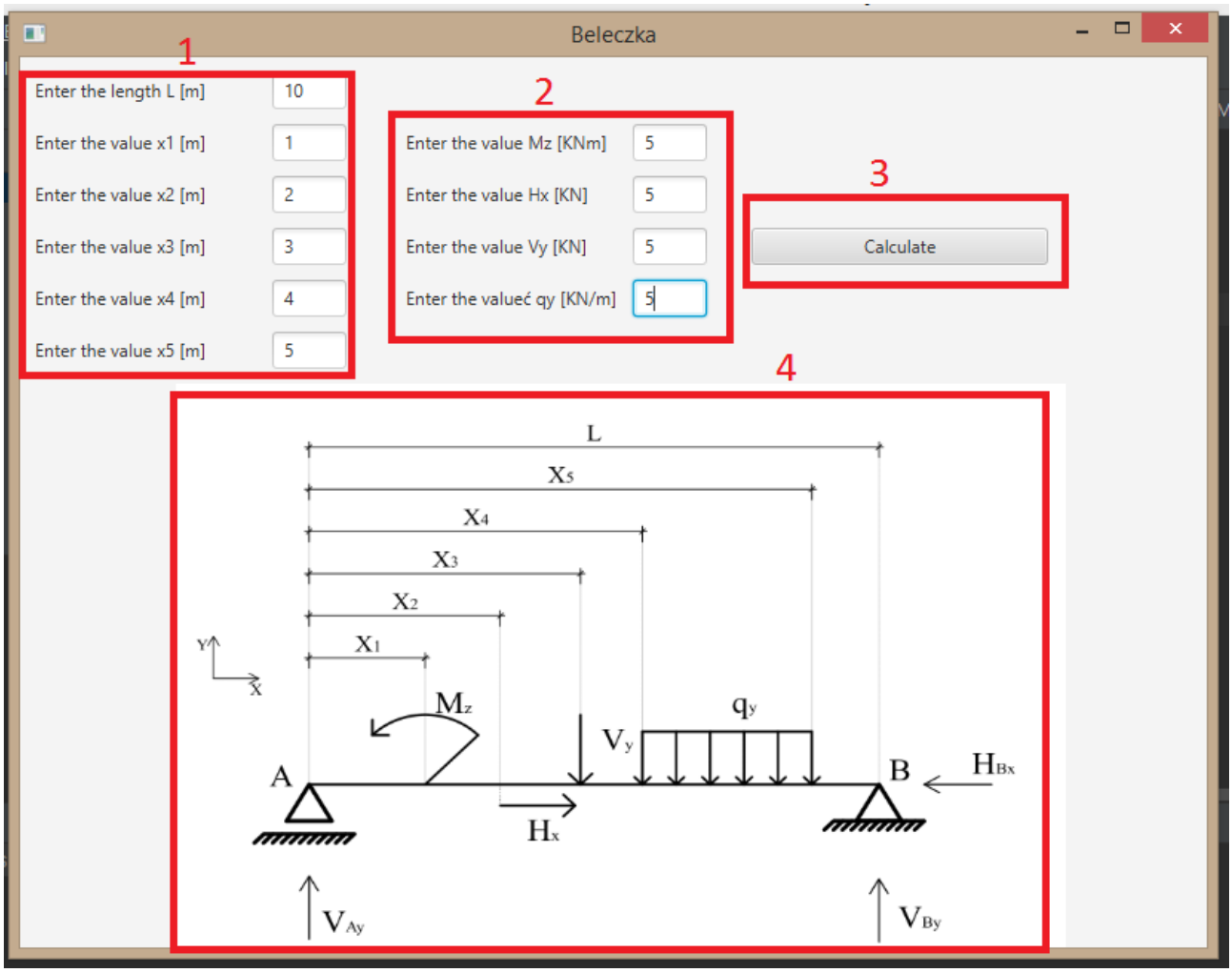
- After entering the correct data and clicking this button, you will proceed to the next scene (SCENE 2).

Rectangle 4

- Represents a diagram of a simply supported beam, according to which you should enter data in Rectangle 1 and Rectangle 2.

General Notes:

In Rectangles 1 and 2, positive values are entered because the appropriate plus and minus signs are considered in the charting function. Therefore, in the example filling of the rectangles with values, they are positive, as shown in the diagram.


Beleczka
1
Enter the length L [m]
10
Enter the value x1 [m]
1
Enter the value x2 [m]
2
Enter the value x3 [m]
3
Enter the value x4 [m]
4
Enter the value x5 [m]
5
2
Enter the value Mz [KNm]
5
Enter the value Hx [KN]
5
Enter the value Vy [KN]
5
Enter the valueć qy [KN/m]
5
3
Calculate
4
L
X5
X4
X3
X2
X1
Y
X
Mz
Vy
qy
A
B
HBx
Hx
VAy
VBy

SCENE 2

Rectangle 1

- The description indicates that underneath are the values of support reactions, which are the results of the user-entered data.

Rectangle 2

- Values of support reactions (These values appear after clicking the button in Rectangle 4).

Rectangle 3

- Here, all values entered by the user are listed for verification purposes.

Rectangle 4

- Clicking on it causes the correct values to appear in Rectangle 2.

Rectangle 5

- This is the button that displays the scene with bending moment diagrams.

Rectangle 6

- This is the button that displays the scene with shear force diagrams.

Rectangle 7

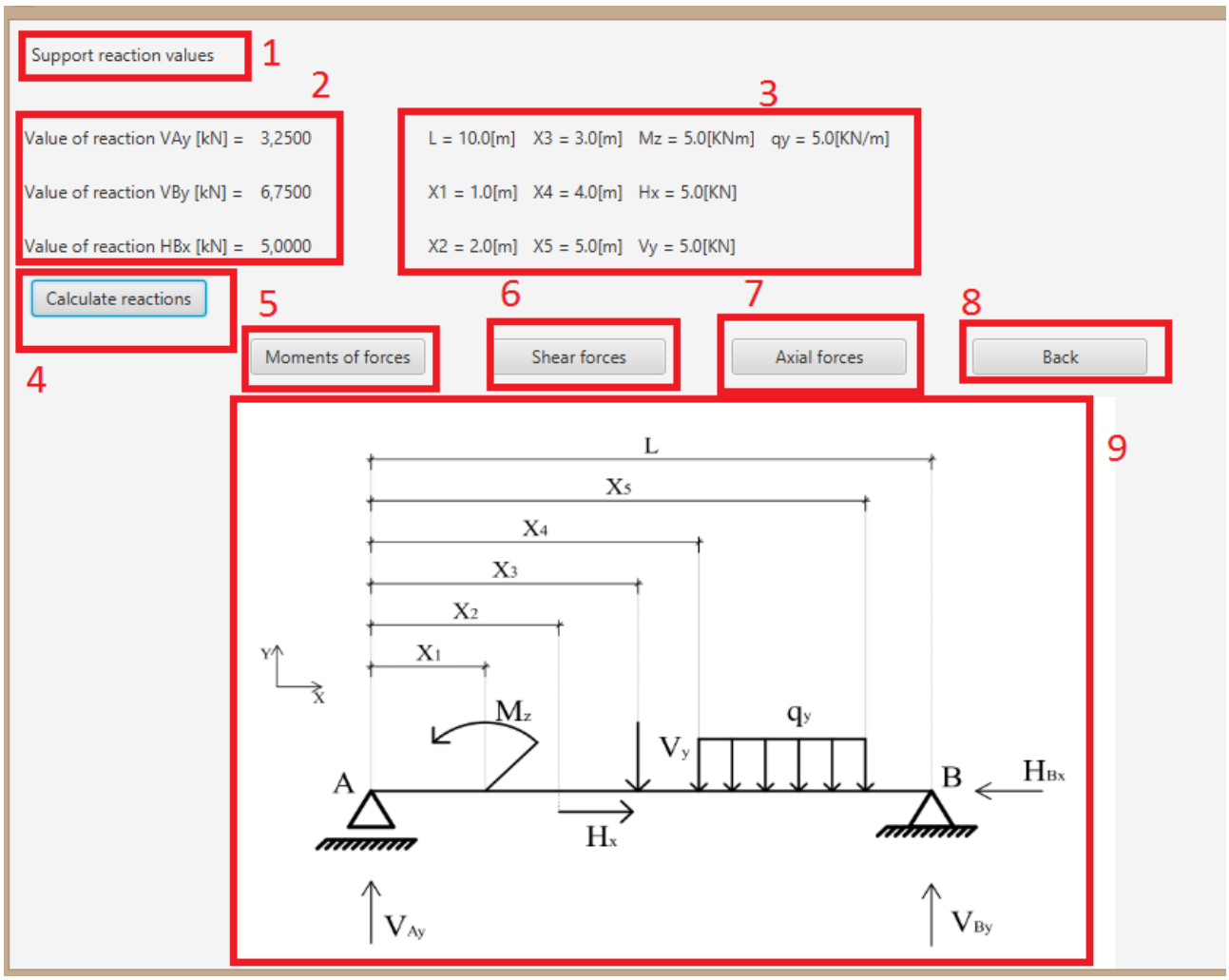
- This is the button that displays the scene with axial force diagrams.

Rectangle 8

- This button will redirect you to the previous scene (SCENE 1).

Rectangle 9

- This is the same image as in SCENE 1, displayed again. Rectangle 9 and Rectangle 3 together provide the ability for continuous data verification.


Support reaction values
1
2
Value of reaction VAy [kN] = 3,2500
Value of reaction VBy [kN] = 6,7500
Value of reaction HBx [kN] = 5,0000
3
L = 10.0[m] X3 = 3.0[m] Mz = 5.0[KNm] qy = 5.0[KN/m]
X1 = 1.0[m] X4 = 4.0[m] Hx = 5.0[KN]
X2 = 2.0[m] X5 = 5.0[m] Vy = 5.0[KN]
Calculate reactions
4
5
Moments of forces
6
Shear forces
7
Axial forces
8
Back
9
L
X5
X4
X3
X2
X1
Y
X
Mz
qy
Vy
A
B
HBx
Hx
VAy
VBy

FORCE DIAGRAMS SCENE All scenes with force diagrams are analogous. Rectangle 1

- A graph showing the distribution of internal forces, in this case, moments along the length of the beam.

Rectangle 2

- A scroll bar that allows you to scroll to read force values at different distances.

Rectangle 3

- A field where you can enter a distance value 'x' to precisely read the force value at a specific point on the beam.

Rectangle 5

- After clicking the button, the minimum and maximum force values and their corresponding positions will be displayed.