Task 7.1

# Student Name: Peter Stacey

# Student ID: 219011171

Question 1

Draw a series of figures demonstrating the insertion of the values:

20, 9, 3, 7, 5, 8, 25, 30, 15, 6, 17

A picture containing light, computer, traffic, sitting

Description automatically generated

A picture containing computer, sitting, dark, computer

Description automatically generated

A picture containing sitting, dark, light, computer

Description automatically generated

A close up of a logo

Description automatically generated

A picture containing sitting, dark, computer, light

Description automatically generated

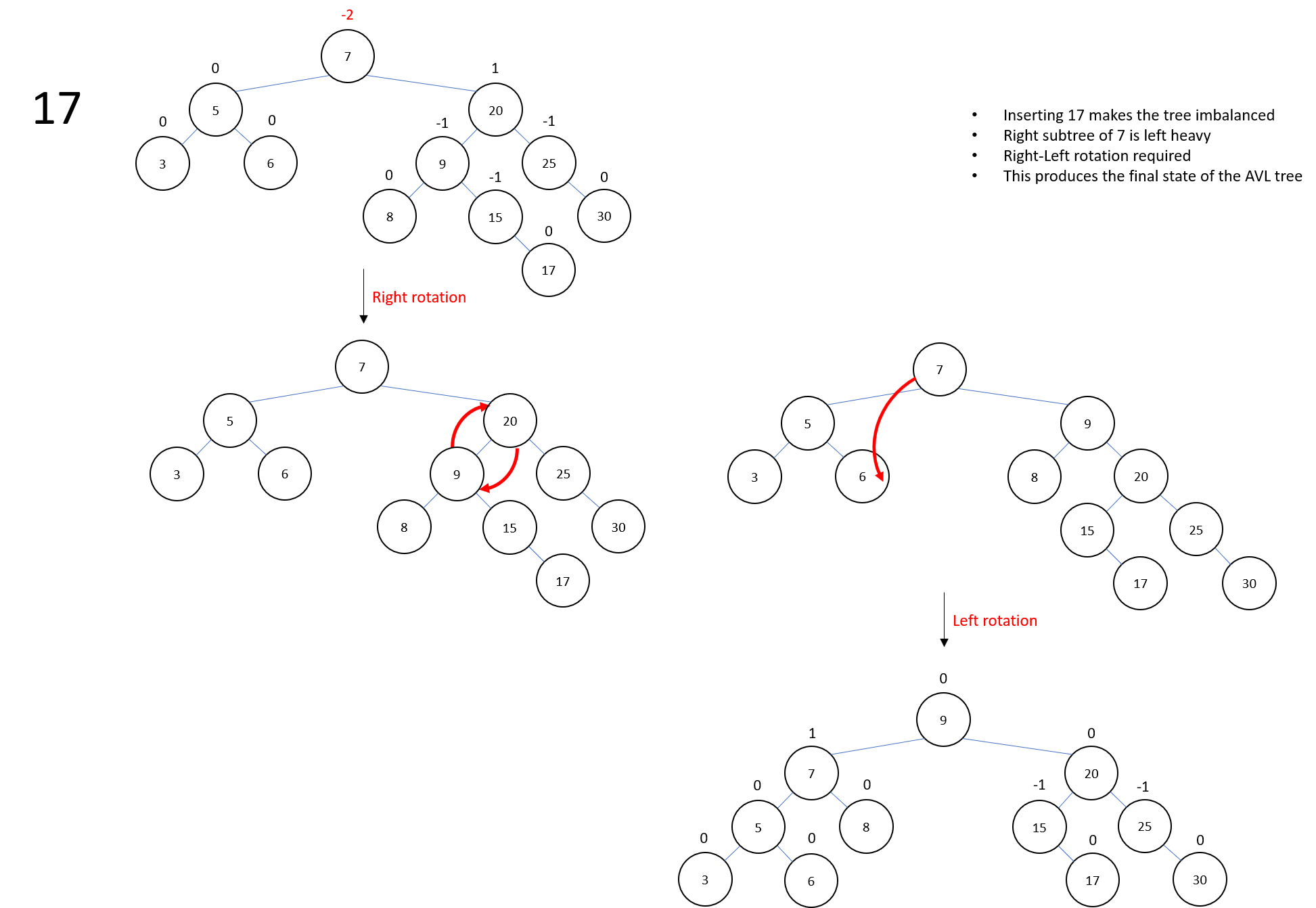
A picture containing dark, sitting, light, computer

Description automatically generated

A picture containing indoor, sitting, computer, dark

Description automatically generated

­



To confirm my results, I wrote an AVL Tree class in C# and tester to print the operations:

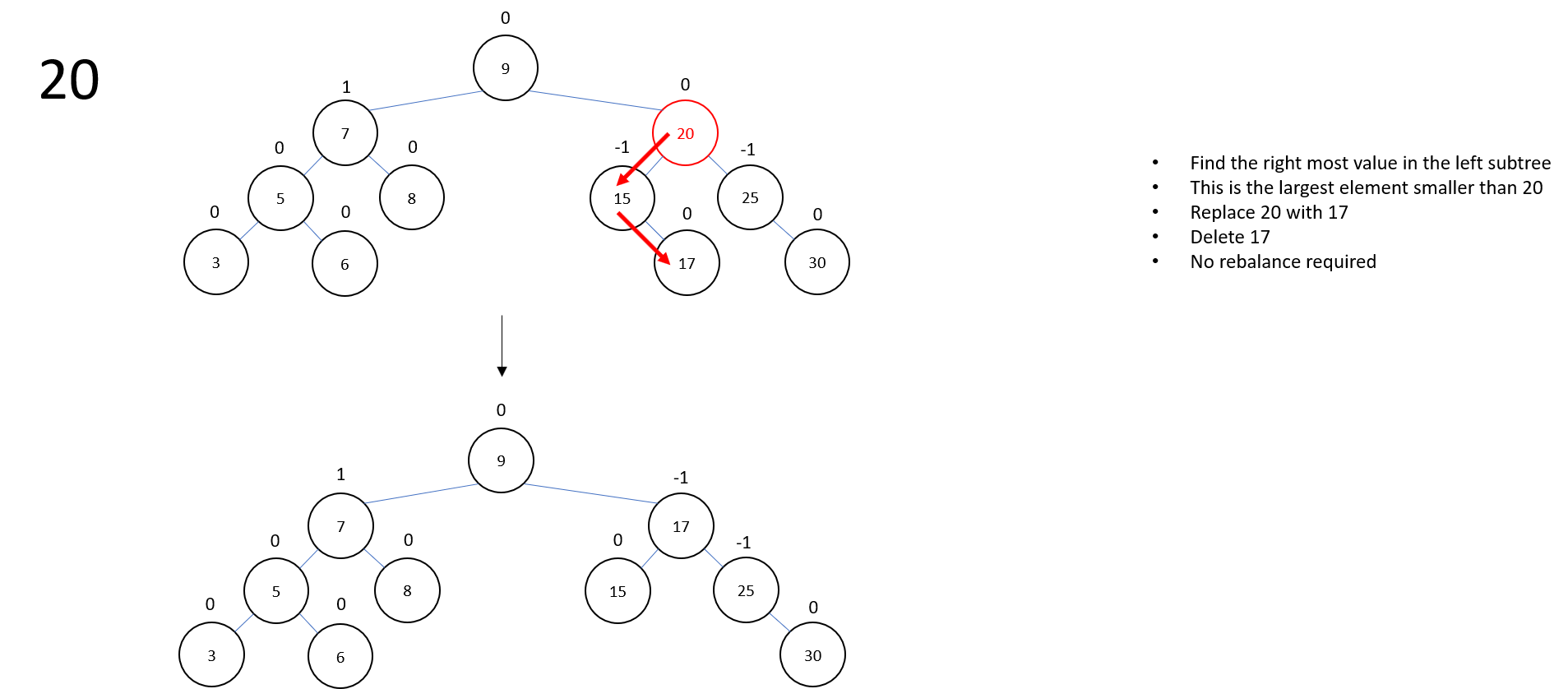
A screenshot of a computer

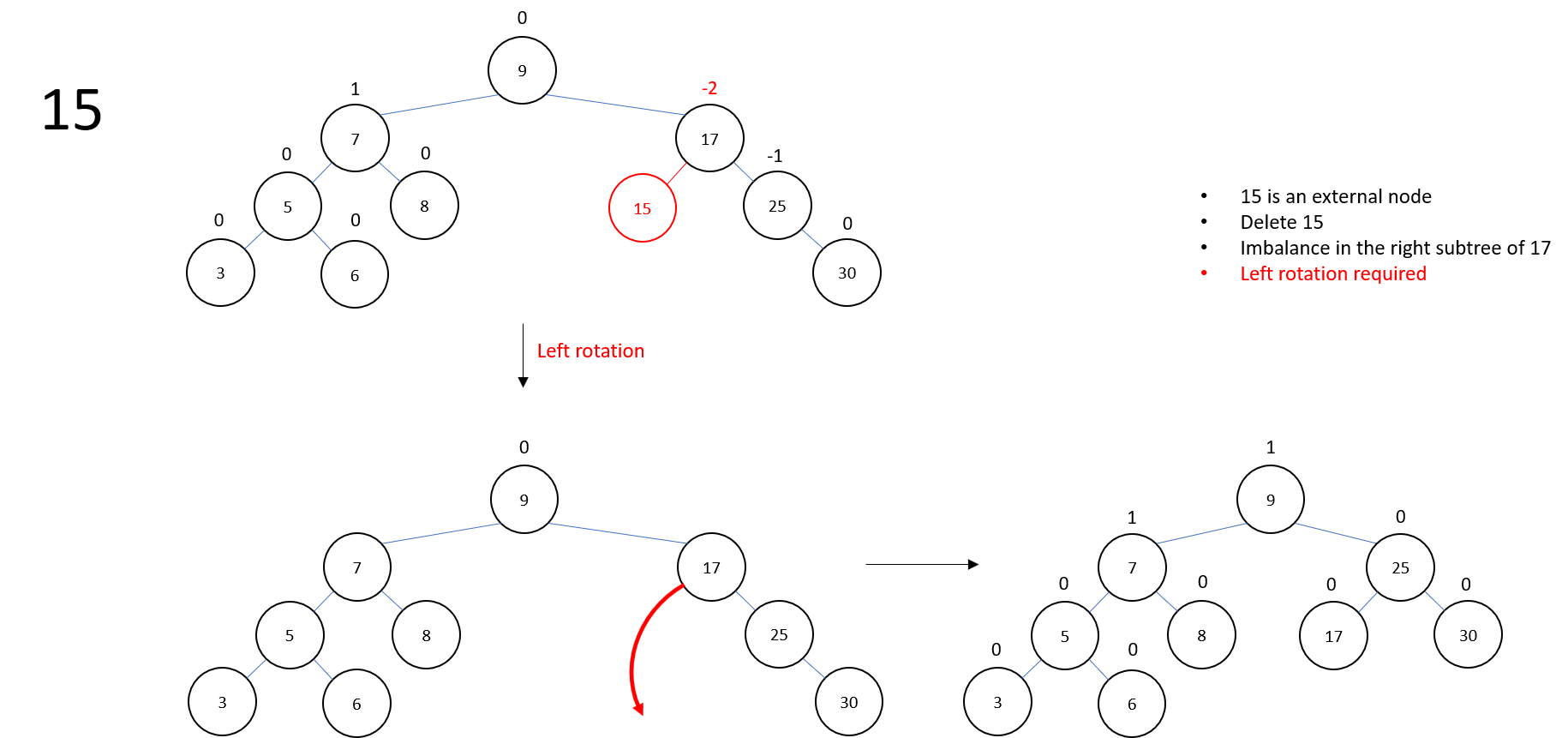
Description automatically generated

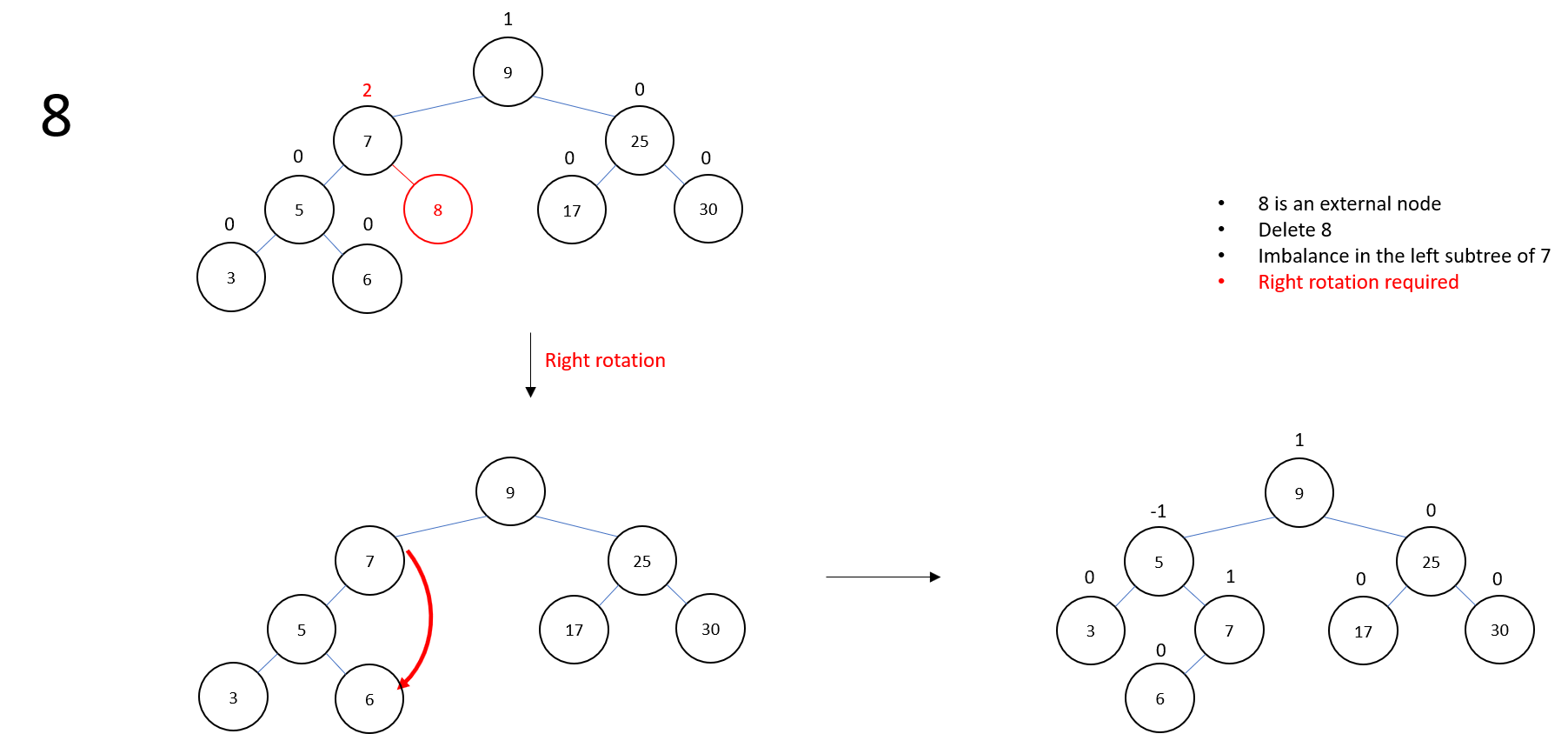
Question 2

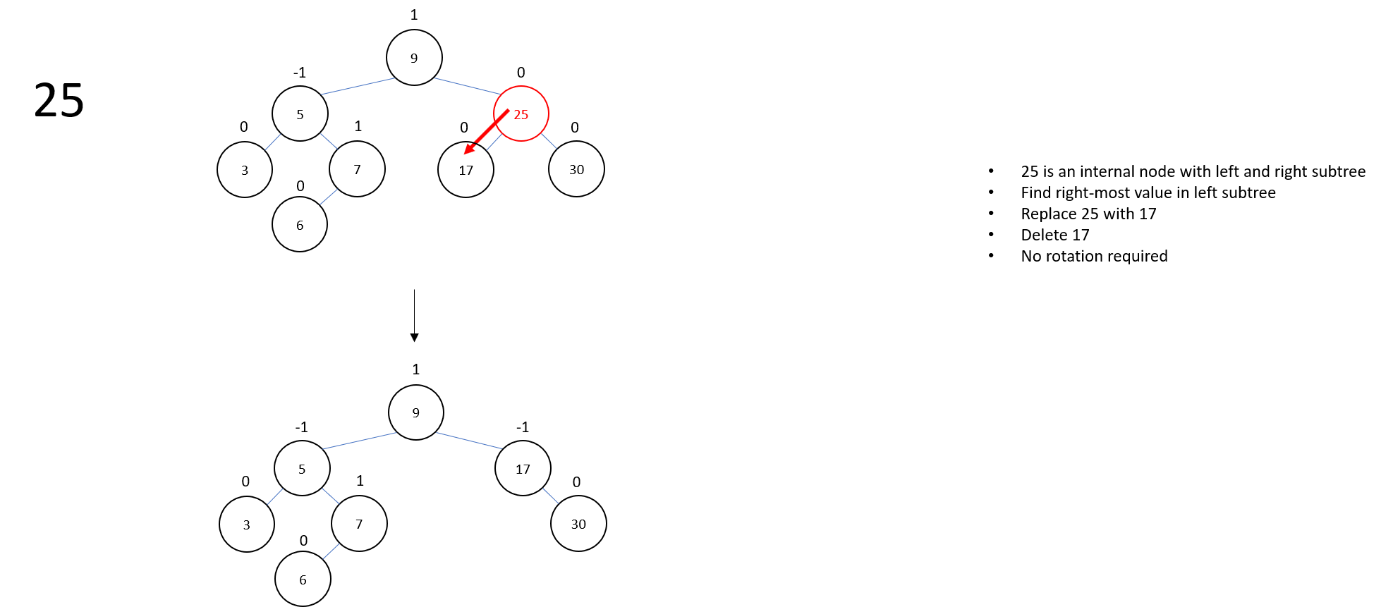
Now, draw a series of figures showing the deletion of the values:

20, 15, 8, 25, 30, 9, 17, 5, 6, 3, 7









A picture containing computer, sitting, computer, dark

Description automatically generated

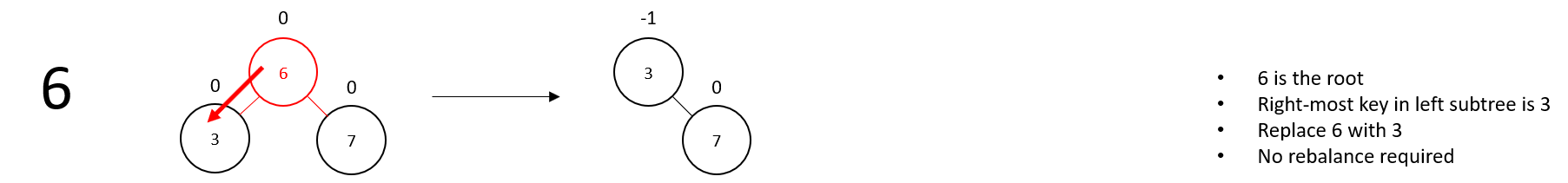
A picture containing computer, computer, sky, star

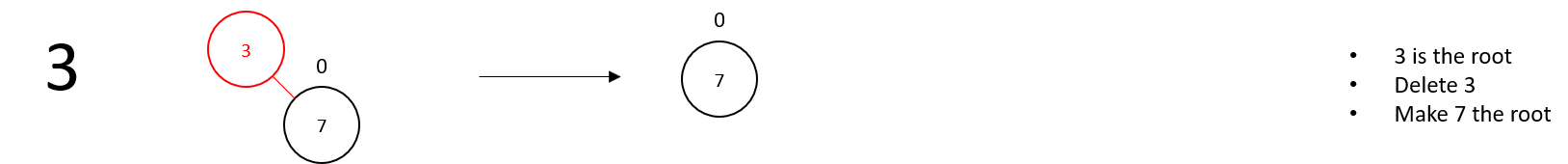
Description automatically generated

A picture containing object, sitting, clock, meter

Description automatically generated

A picture containing light, sitting, dark, computer

Description automatically generated



A close up of a logo

Description automatically generated

Question 3

What order should we insert the elements ሼ1, 2, … ,7ሽ into an empty AVL tree so that we do not have to perform any rotations on it?

Any of the following orders will not require any rotation:

4, 2, 6, 1, 7, 3, 5

4, 6, 2, 1, 7, 3, 5

4, 2, 6, 7, 1, 3, 5

4, 6, 2, 7, 1, 3, 5

4, 2, 6, 1, 7, 5, 3

4, 6, 2, 1, 7, 5, 3

4, 2, 6, 7, 1, 5, 3

4, 6, 2, 7, 1, 5, 3

4, 2, 6, 7, 3, 5, 1

6, 4, 2, 7, 3, 5, 1

4, 2, 6, 7, 3, 1, 5

4, 2, 6, 7, 3, 5, 1

4, 2, 6, 5, 3, 7, 1

4, 2, 6, 5, 3, 1, 7

4, 6, 2, 5, 3, 7, 1

4, 6, 2, 5, 3, 1, 7

3, 2, 5, 1, 6, 4, 7

3, 5, 2, 1, 6, 4, 7

3, 2, 5, 6, 1, 4, 7

3, 5, 2, 6, 1, 4, 7

3, 2, 5, 1, 4, 6, 7

3, 5, 2, 1, 4, 6, 7

3, 2, 5, 4, 1, 6, 7

3, 5, 2, 4, 1, 6, 7

5, 3, 6, 2, 7, 4, 1

5, 6, 3, 2, 7, 4, 1

5, 3, 6, 7, 2, 4, 1

5, 3, 6, 7, 4, 2, 1

5, 3, 6, 4, 7, 2, 1

5, 6, 3, 4, 7, 2, 1

5, 3, 6, 2, 7, 1, 4

5, 6, 3, 2, 7, 1, 4