2.1-1.

Using Figure 2.2 as a model, illustrate the operation of INSERTION-SORT on the array $A = \langle 31, 41, 59, 26, 41, 58 \rangle$.

Answer.

Figure 1 shows how the INSERTION-SORT procedure workds for $A = \langle 31, 41, 59, 26, 41, 58 \rangle$.

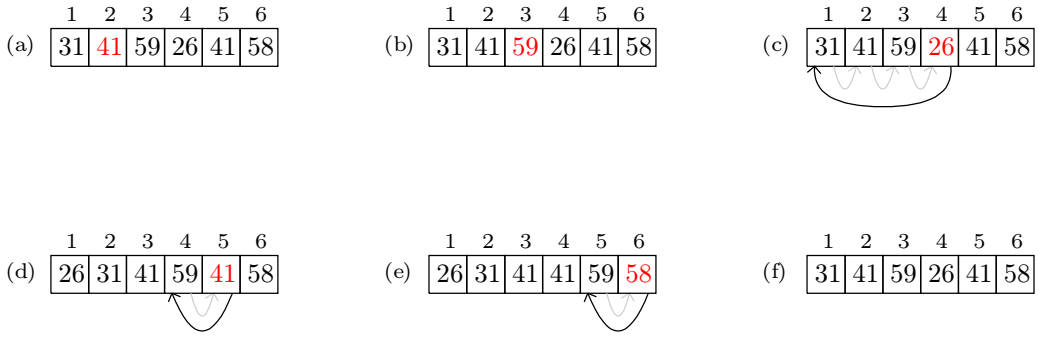

Figure 1. The operation of INSERTION-SORT on the array $A = \langle 31, 41, 59, 26, 41, 58 \rangle$. Array indices appeat above the rectangles, and values stored in the array positions appear within the rectangles. **(a)-(e)** The iterations of the **for** loop of lines 1-8. In each iteration, the rectangle with red font holds the key taken from $A[j]$, which is compared with the values in rectangles to its left in the test of line 5. Shaded arrows show array values moved one position to the right in line 6, and black arrows indicate where the key moves to in line 8. **(f)** the final sorted array.

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