This program utilizes one stack to perform constant time lookups for the minimum of a set of numbers. First, the program checks if the stack is empty during an insertion call, and if it is, sets the min to the inserted item.

Otherwise, the program compares the inserted item to the minimum. If it is greater, then the item is inserted into the stack, and nothing else is done.

Otherwise, the item's value times two subtracted by the minimum element is inserted into the stack, and the minimum element is set to the inserted item.

During a pop call, we check what the top of the stack looks like. If the top of the stack is less than the minimum element, then we retrieve the previous minimum $(2 \cdot \min - \text{top})$ and set it to the current minimum.

Otherwise, the item is popped as normal, and nothing else is done.