Module: SV for Verification
Section: Arrays **Task:** Queue & Array Methods

Task
Queue & Array Methods

➢ **Queue:**
  ○ **Code Snippet:**

```systemverilog
// Author: Noman Rafiq
// Dated: Sep 02, 2024

module queues;
  byte queue[$:3] = { 2, -1, 127 }; // A queue of depth 3 i.e. can hold
upto 3 bytes
  int result[$];
  byte temp[$];

  initial begin

    // Queue Sum
    $display("Sum of queue is: %0d", queue.sum());

    // Queue min
    $display("Min of queue is: %p", queue.min());

    // Queue max
    $display("Max of queue is: %p", queue.max());

    // Sort Queue
    queue.sort();
    $display("Sorted queue is: %p", queue);

    // find Index of item < 0
    result = queue.find_index with (item < 0);
    $display("Find Index : result[%0d] = -1", result[0]);

    // find items > 0
    temp = queue.find with (item > 0);
    $display("Find Items : %p", temp);

    // Reverse-Sort Queue
    queue.rsort();
    $display("Reverse-Sorted queue is: %p", queue);

  end
```

```
endmodule
```

➢ Output:

```
Sum of queue is: -128
Min of queue is: '{-1}
Max of queue is: '{127}
Sorted queue is: '{-1, 2, 127}
Find Index : result[0] = -1
Find Items : '{2, 127}
Reverse-Sorted queue is: '{127, 2, -1}
            V C S   S i m u l a t i o n   R e p o r t
Time: 0 ns
CPU Time:      0.360 seconds;      Data structure size:   0.0Mb
Tue Sep  3 01:51:31 2024
Done
```