37th Day

Mailbox

Code1

```
class generator;
  mailbox mbx;
  bit [3:0] trans;

  function new(mailbox mb);
    mbx=mb;
  endfunction

  task putting_data();
    repeat(5)
      begin
        trans=$random;
        #1;
        mbx.put(trans);
        $display("gen class putting data %d at time=%0t",trans,$time);
      end
  endtask
endclass

class driver;
  mailbox mbx;
  bit[3:0] trans;
  function new(mailbox mb);
    mbx=mb;
```

```
  endfunction

  task getting_data();
    repeat(5)
      begin
        mbx.get(trans);
        $display("drv class getting data %d at time=%0t",trans,$time);
      end
  endtask



endclass

module tb;

  initial
    begin
      mailbox mb=new();
      generator gen=new(mb);
      driver drv=new(mb);
      fork
      gen.putting_data();
      drv.getting_data();
     join

    end
endmodule
```

Simulation

```
Contains Synopsys proprietary information.
Compiler version U-2023.03-SP2_Full64; Runtime version U-2023.03-SP2_Full64;  Apr 30 13:05 2025
gen class putting data  4 at time=1
drv class getting data  4 at time=1
gen class putting data  1 at time=2
drv class getting data  1 at time=2
gen class putting data  9 at time=3
drv class getting data  9 at time=3
gen class putting data  3 at time=4
drv class getting data  3 at time=4
gen class putting data 13 at time=5
drv class getting data 13 at time=5
          V C S   S i m u l a t i o n   R e p o r t
Time: 5 ns
CPU Time:      0.420 seconds;       Data structure size:   0.0Mb
```

Code 2(try_get)

```
class generator;
  mailbox mbx;
  bit [3:0] trans;

  function new(mailbox mb);
    mbx=mb;
  endfunction

  task putting_data();
    repeat(5)
      begin
        trans=$random;
        #1;
        mbx.put(trans);
        $display("gen class putting data %d at time=%0t",trans,$time);
      end
```

```
  endtask

endclass

class driver;

  mailbox mbx;
  bit[3:0] trans;

  function new(mailbox mb);
   mbx=mb;
  endfunction

  task getting_data();
    repeat(5)
      begin
        mbx.try_get(trans);
        $display("drv class getting data %d at time=%0t",trans,$time);
      end
  endtask

endclass

module tb;

  initial
    begin
      mailbox mb=new();
      generator gen=new(mb);
      driver drv=new(mb);
```

```
    fork
    gen.putting_data();
    drv.getting_data();
   join

  end
endmodule
```

Simulation

```
drv class getting data  0 at time=0
drv class getting data  0 at time=0
drv class getting data  0 at time=0
drv class getting data  0 at time=0
drv class getting data  0 at time=0
gen class putting data  4 at time=1
gen class putting data  1 at time=2
gen class putting data  9 at time=3
gen class putting data  3 at time=4
gen class putting data 13 at time=5
```

Code3(peek)-didn’t remove value from mailbox

```
class generator;
 mailbox mbx;
 bit [3:0] trans;

 function new(mailbox mb);
  mbx=mb;
 endfunction

 task putting_data();
  repeat(5)
   begin
    trans=$random;
    #1;
    mbx.put(trans);
    $display("gen class putting data %d at time=%0t",trans,$time);
   end
 endtask

endclass

class driver;

 mailbox mbx;
 bit[3:0] trans;

 function new(mailbox mb);
```

```
  mbx=mb;
 endfunction

 task getting_data();
  repeat(5)
   begin
    mbx.peek(trans);
    $display("drv class getting data %d at time=%0t",trans,$time);
   end
 endtask



endclass

module tb;

 initial
  begin
   mailbox mb=new();
   generator gen=new(mb);
   driver drv=new(mb);
   fork
   gen.putting_data();
   drv.getting_data();
   join

  end
endmodule
```

Simulation

```
Compiler version U-2023.03-SP2_Full64; Runtime version U-2023.03-SP2_Full64;  Apr 30 13:
gen class putting data  4 at time=1
drv class getting data  4 at time=1
drv class getting data  4 at time=1
drv class getting data  4 at time=1
drv class getting data  4 at time=1
drv class getting data  4 at time=1
gen class putting data  1 at time=2
gen class putting data  9 at time=3
gen class putting data  3 at time=4
gen class putting data 13 at time=5
          V C S   S i m u l a t i o n   R e p o r t
Time: 5 ns
```