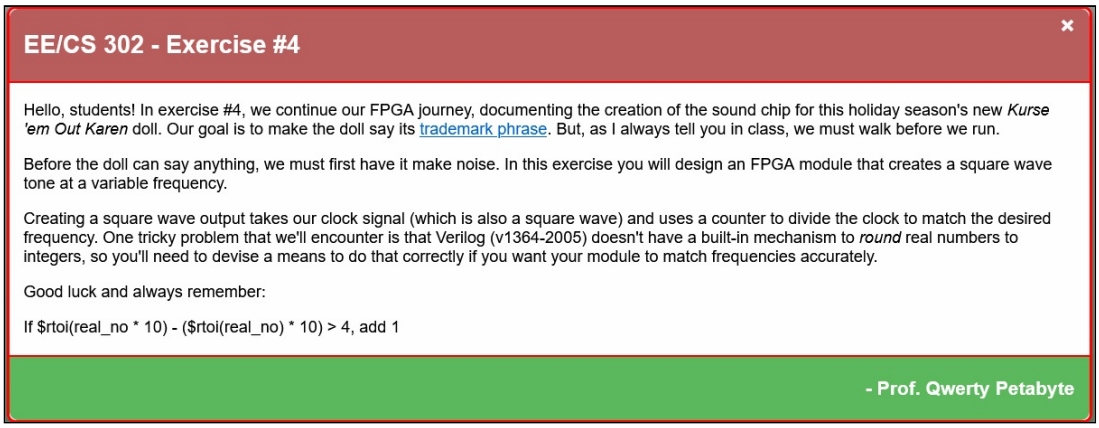
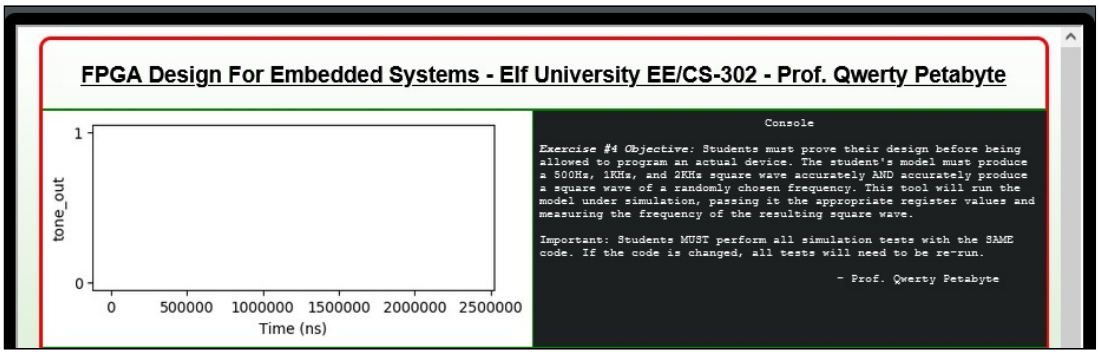
# KringleCon 4: Calling Birds!

## 13) FPGA Programming

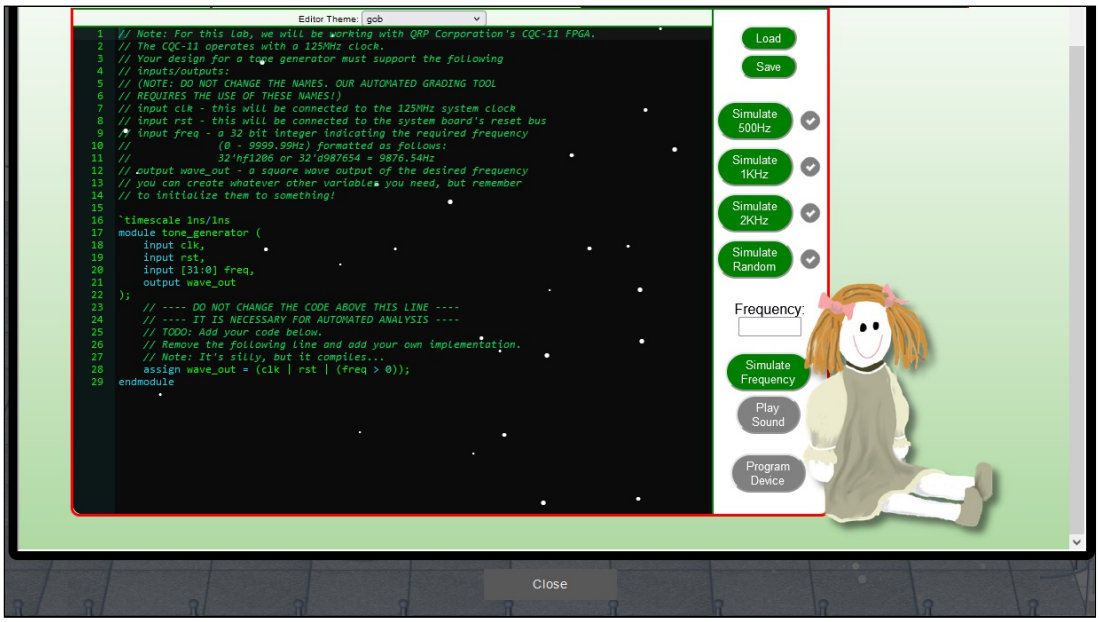
1. Click `Map` (Destinations) icon and then click `Frost Tower Rooftop`
2. Click `FPGA Programming`




3. Close the `EE/CS 302 - Exercise #4` window




4. Scroll `Down` the window

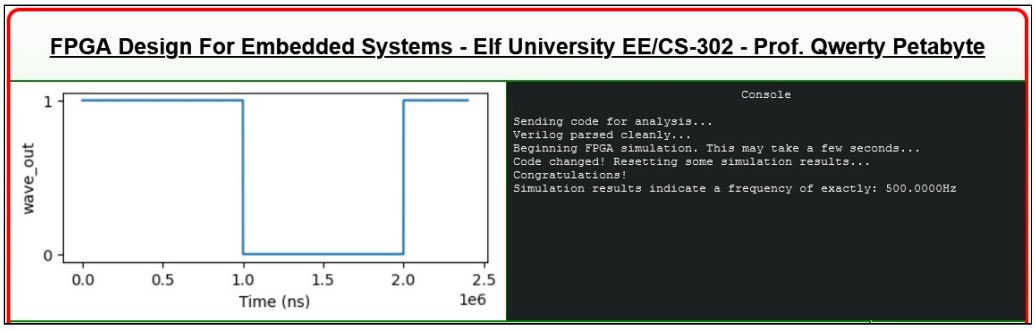


5. Scroll to the `Top` of the window

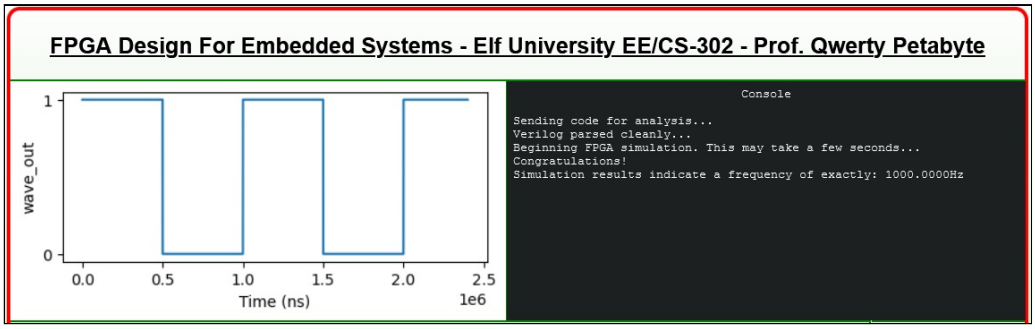
6. Replace line 28 onwards with the following code

```
    reg sq_wave;
    integer counter;

    assign wave_out = sq_wave;

    always @(posedge clk or posedge rst)
    begin
        if(rst==1)
           begin
              counter <= 0;
              sq_wave <= 0;
           end
        else
           begin
              if(counter <= 0)
                 begin
                    counter <= ((125000000 / $rtoi(freq / 100)) / 2) - 1;
                    if ($rtoi(freq * 10) - ($rtoi(freq) * 10) > 4)
                       begin
                          counter <= counter + 2;
                       end
                    sq_wave <= sq_wave ^ 1'b1;
                 end
              else
                 begin
                   counter <= counter - 1;
                 end
           end
    end
endmodule
```

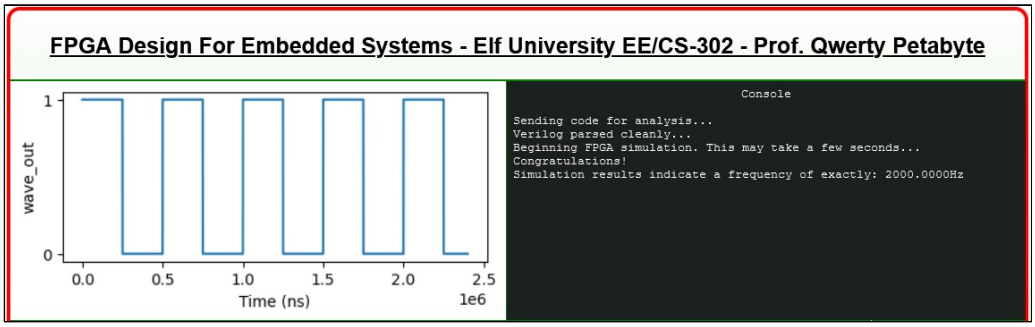
7. Click the `Simulate 500Hz` button



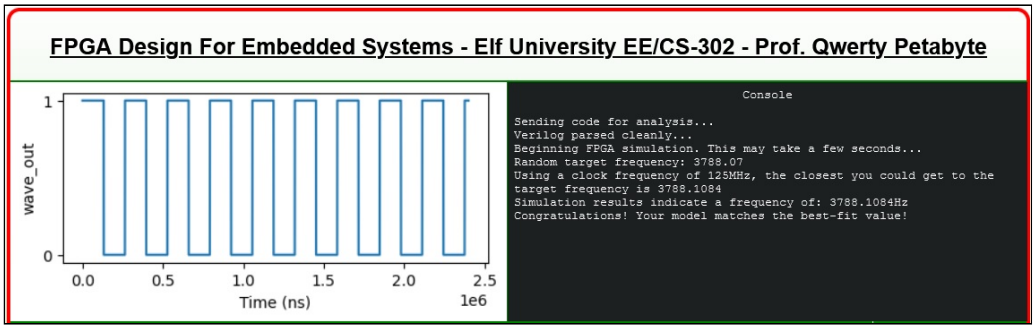
8. Click the `Simulate 1KHz` button




9. Click the `Simulate 2KHz` button




10. Click the `Simulate Random` button




11. Click the `Program Device` button

12. Click the `Close` button

13. Click `Objectives` (tick icon)

14. Scroll `Down`

15. Click `13) FPGA Programming`