IP Creation for 8-Bit Adder

Main steps:

--Write program for full adder

--Run Synthesis

--Run Implementation

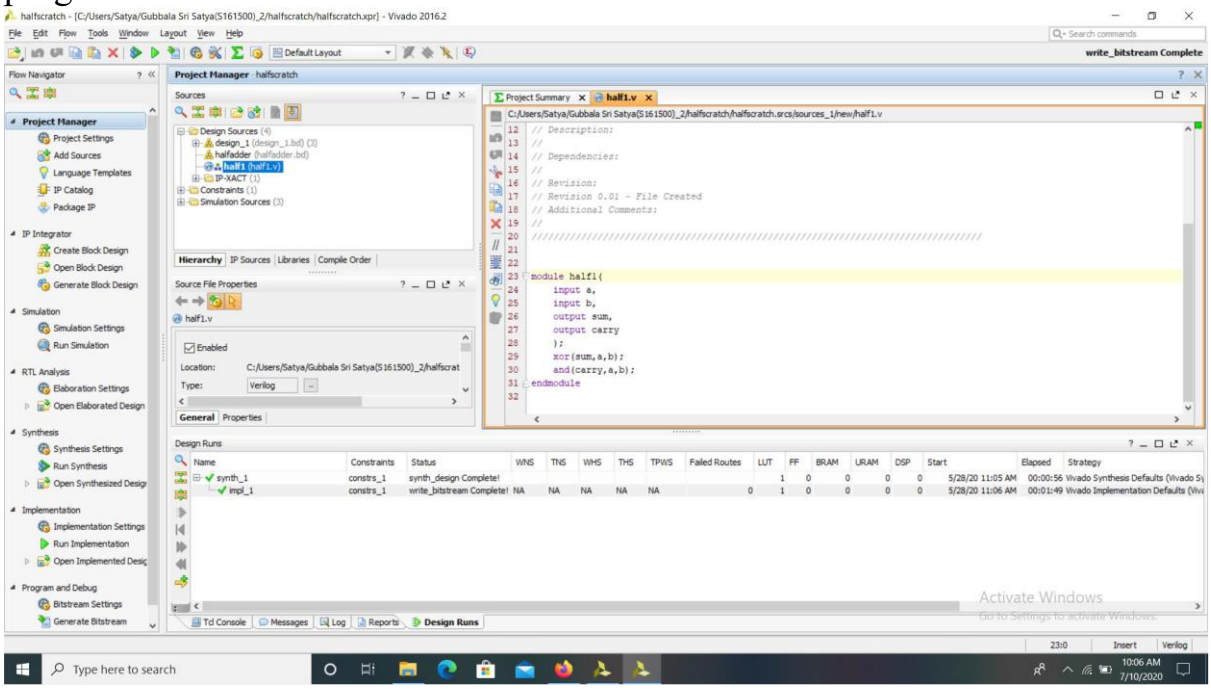
--Generate Bit Stream

--Create IP

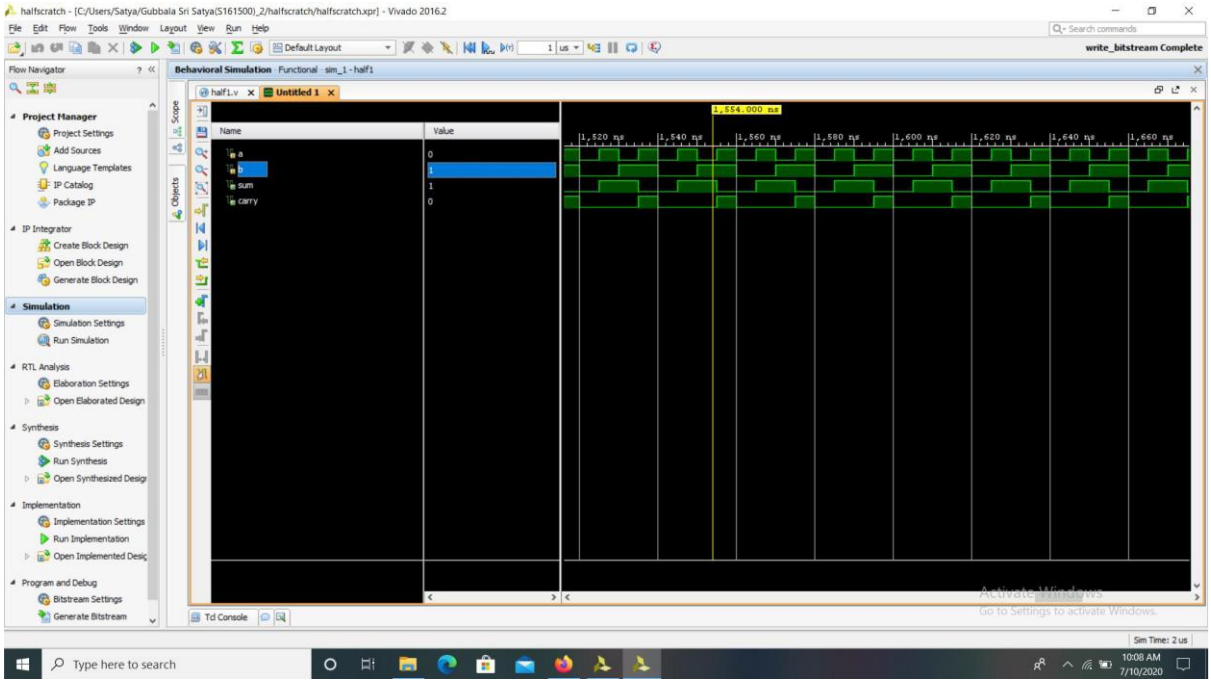
--Cascade 8 IPs to create 8 bit adder.

Detailed Steps:

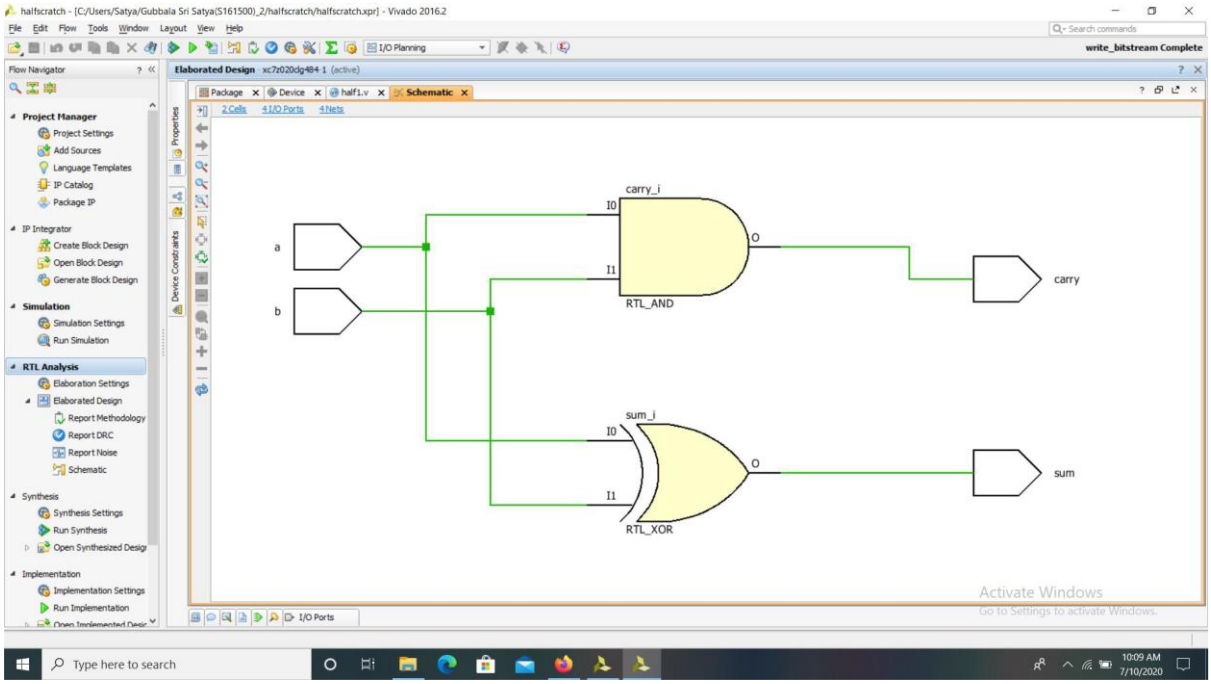
1.Create new project as told in the previous project. Add sources and write the program for half adder in that source file.



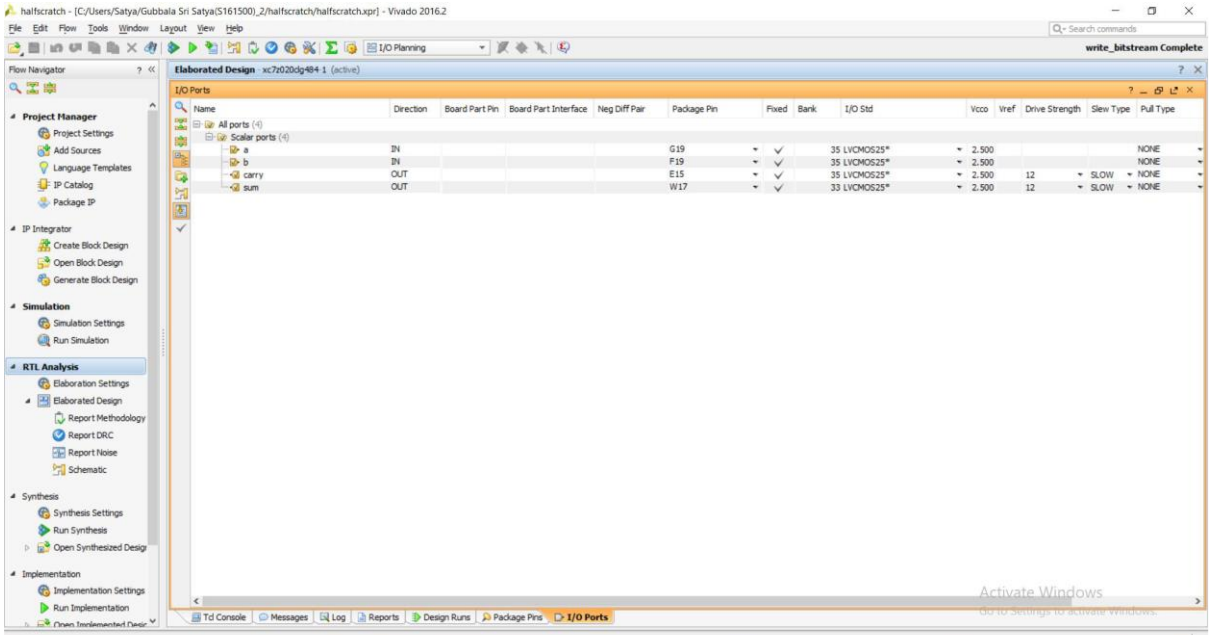
2.Click on Run Simulation. Give values by clicking on force clock. And see the output.

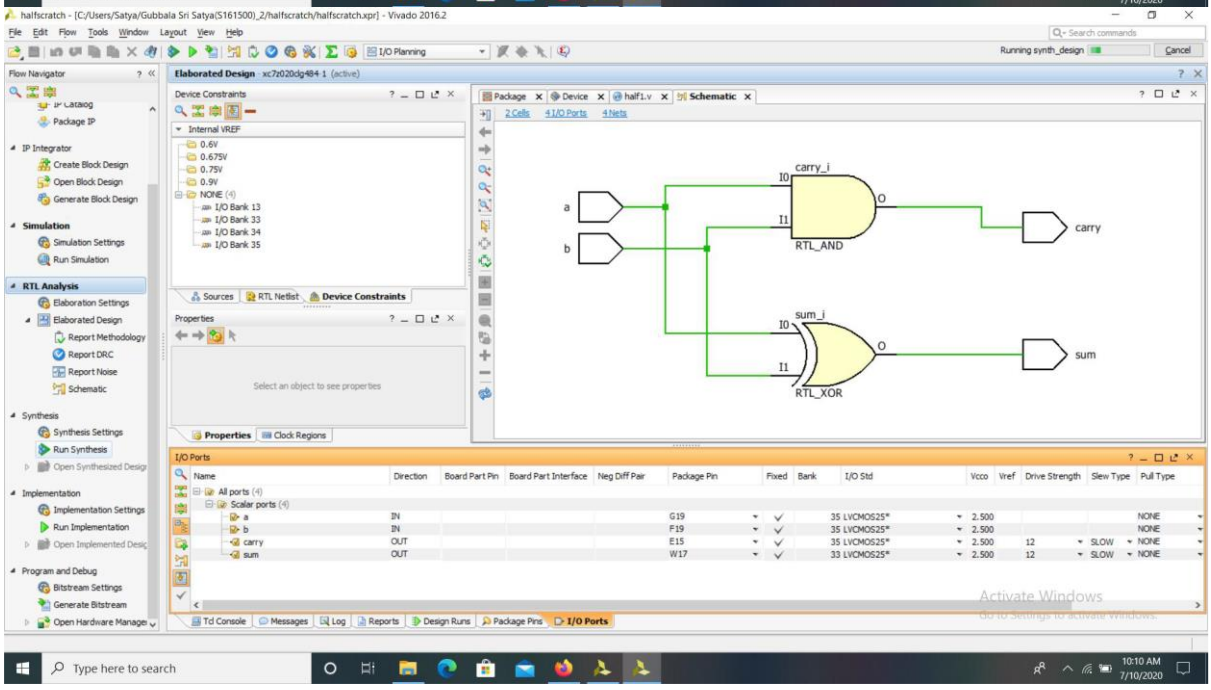


3.Click on RTL schematic and see the RTL schematic of half adder.



4.click on scalar ports and assign the package pins. And then click on Run synthesis. After completion of Synthesis Click on Run Implementation. And then Generate Bit Stream.


halfscratch - [C:/Users/Satya/Gubbala Sri Satya(S161500)_2/halfscratch/halfscratch.xpr] - Vivado 2016.2
write_bitstream Complete
Elaborated Design xc7z020clg484-1 (active)
I/O Ports
Activate Windows
Type here to search
10:09 AM
7/10/2020


halfscratch - [C:/Users/Satya/Gubbala Sri Satya(S161500)_2/halfscratch/halfscratch.xpr] - Vivado 2016.2
Running synth_design
Cancel
Elaborated Design xc7z020clg484-1 (active)
carry_i
sum_i
RTL_AND
RTL_XOR
carry
sum
I/O Ports
Activate Windows
Type here to search
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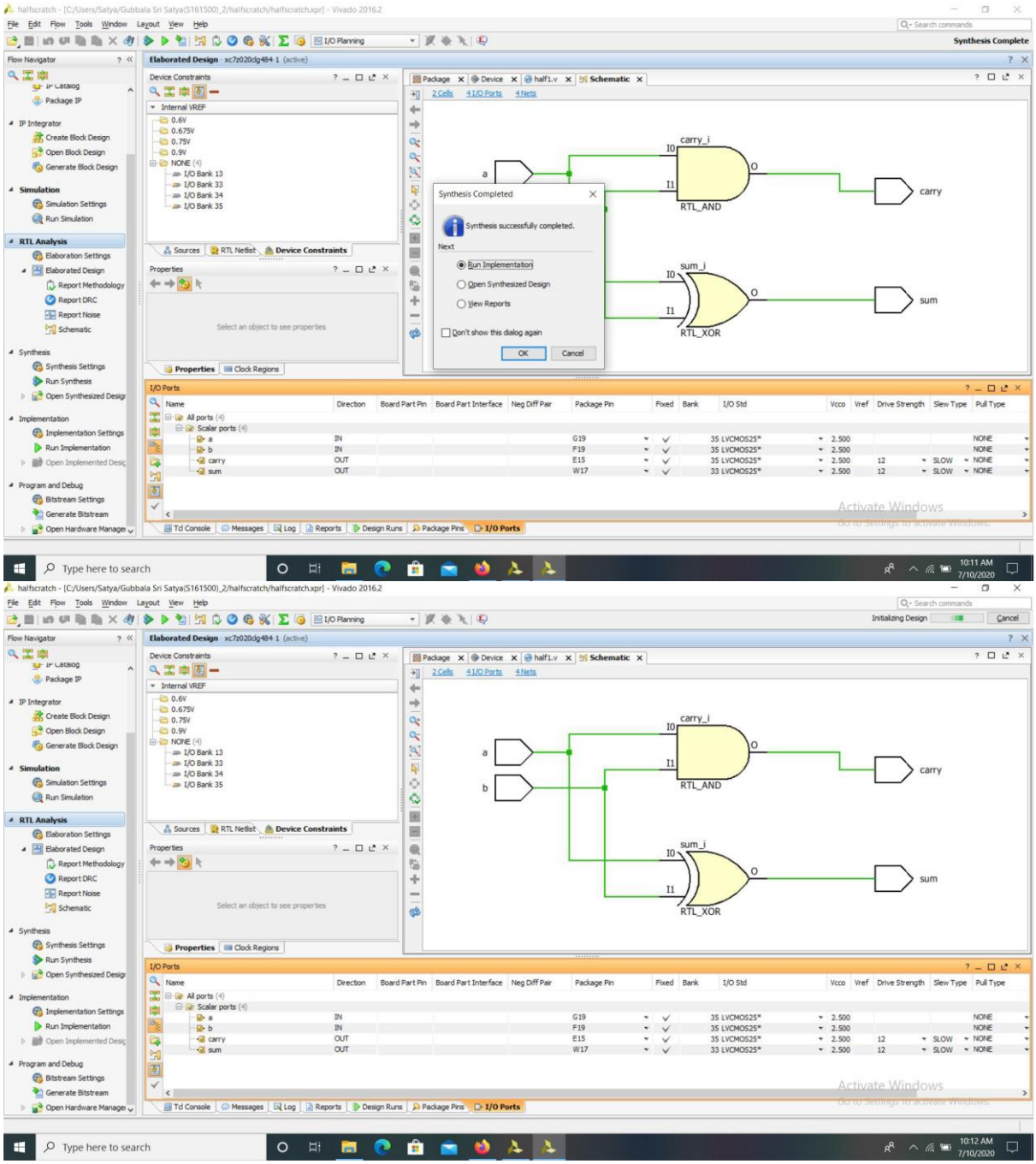
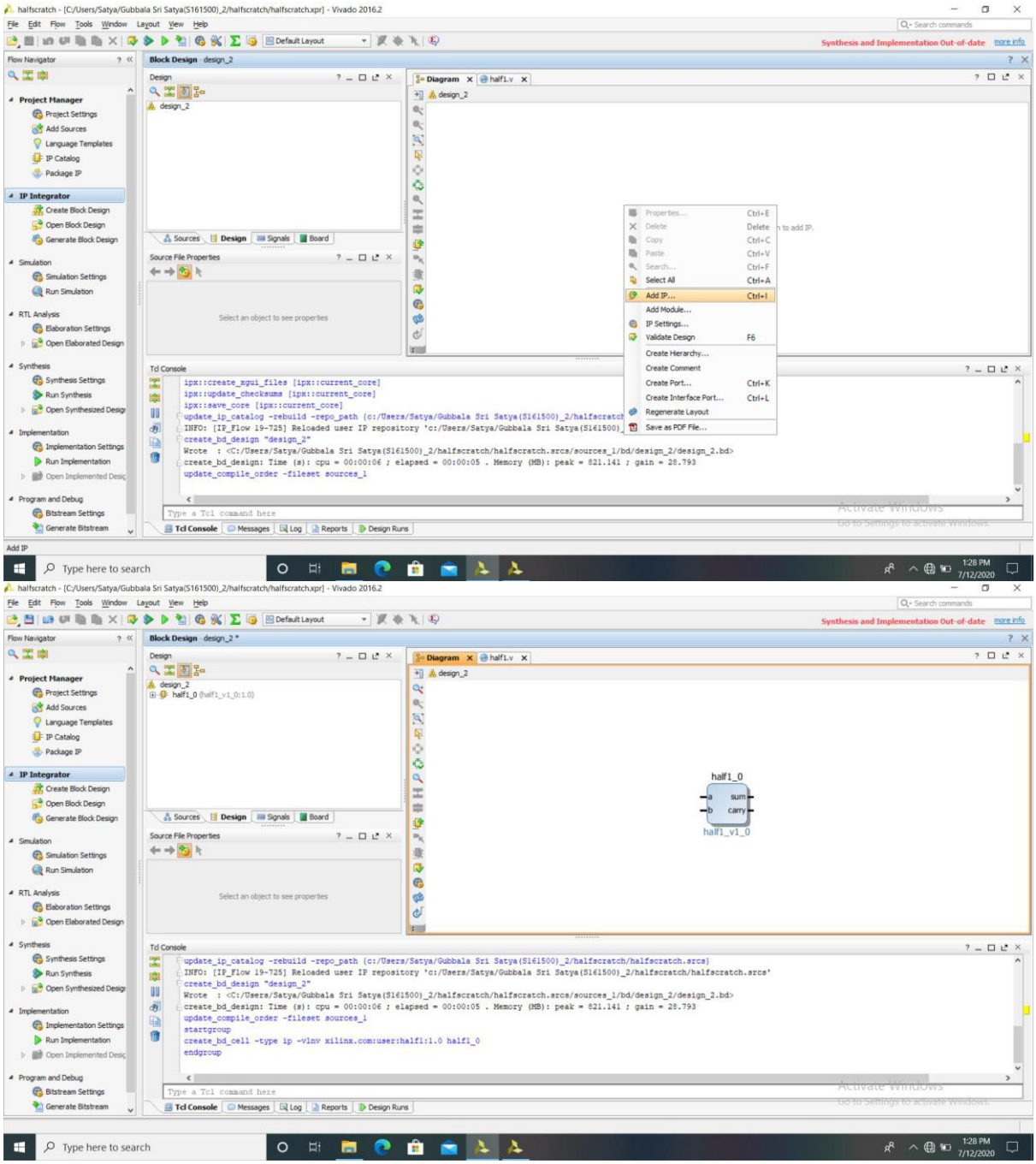
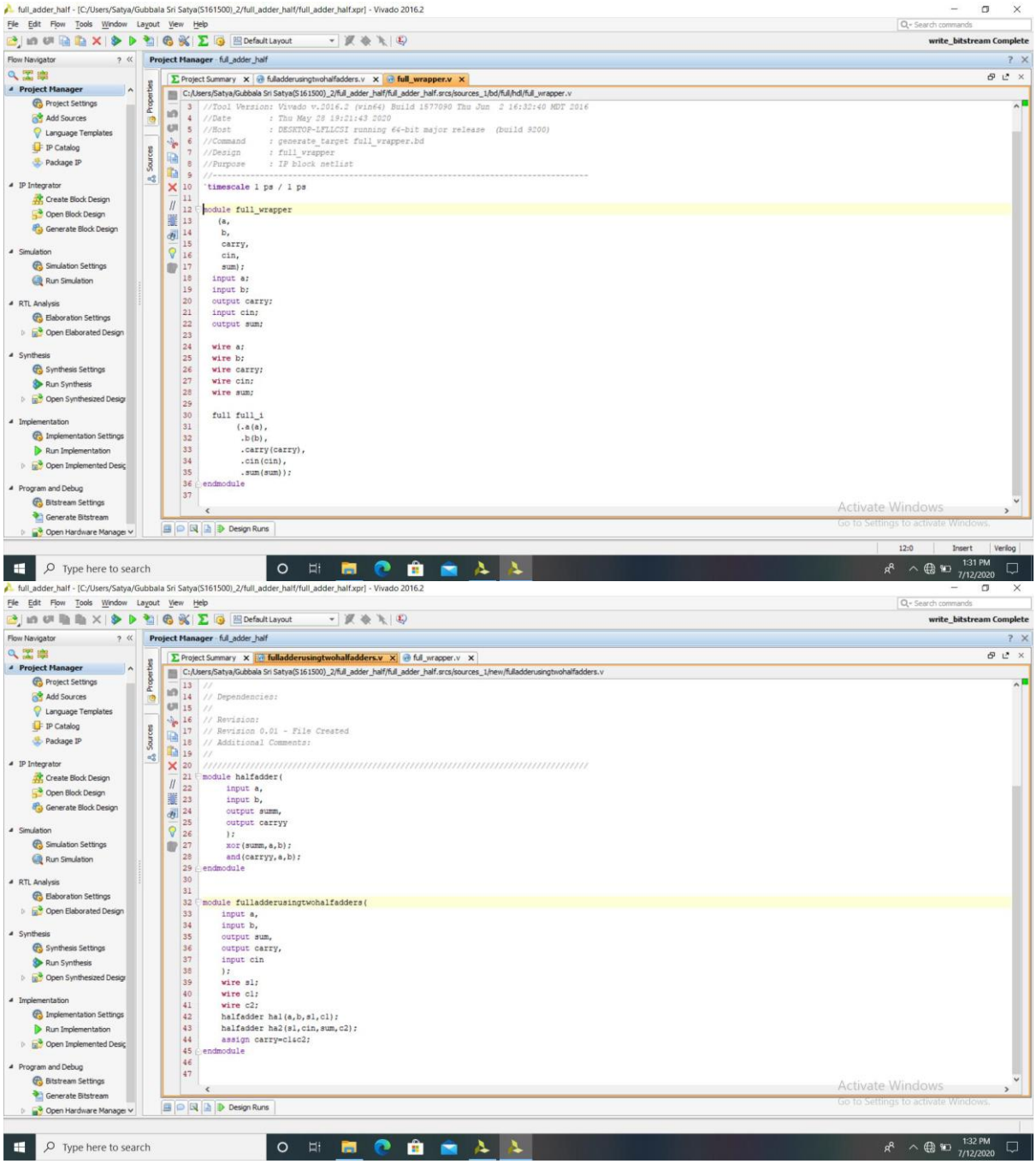
7/10/2020



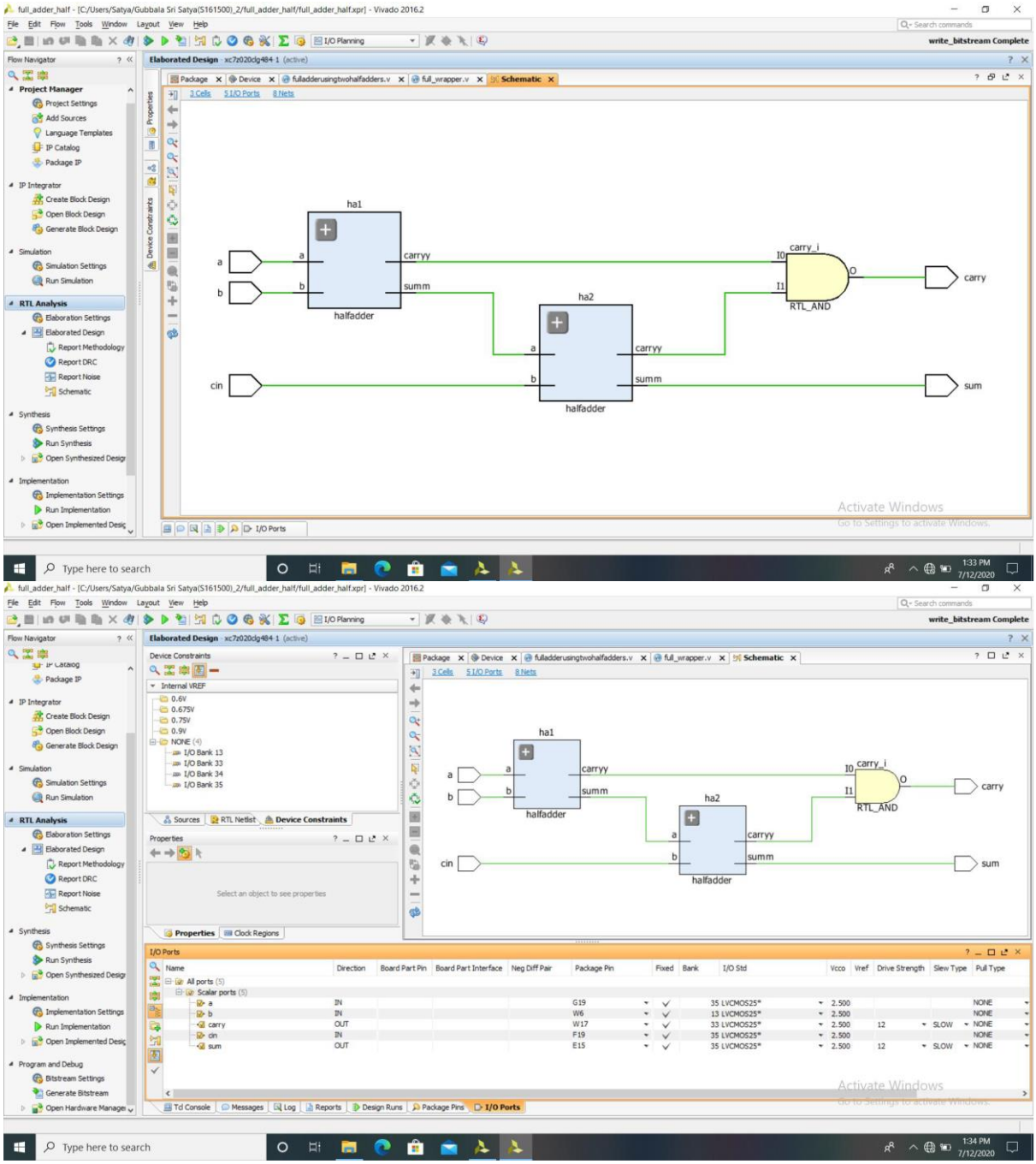
5.After completion of Bit Stream generation, Go to Tools click on Create and Package IP and select Package your current project. Create an IP for half adder. Thus the IP is created.



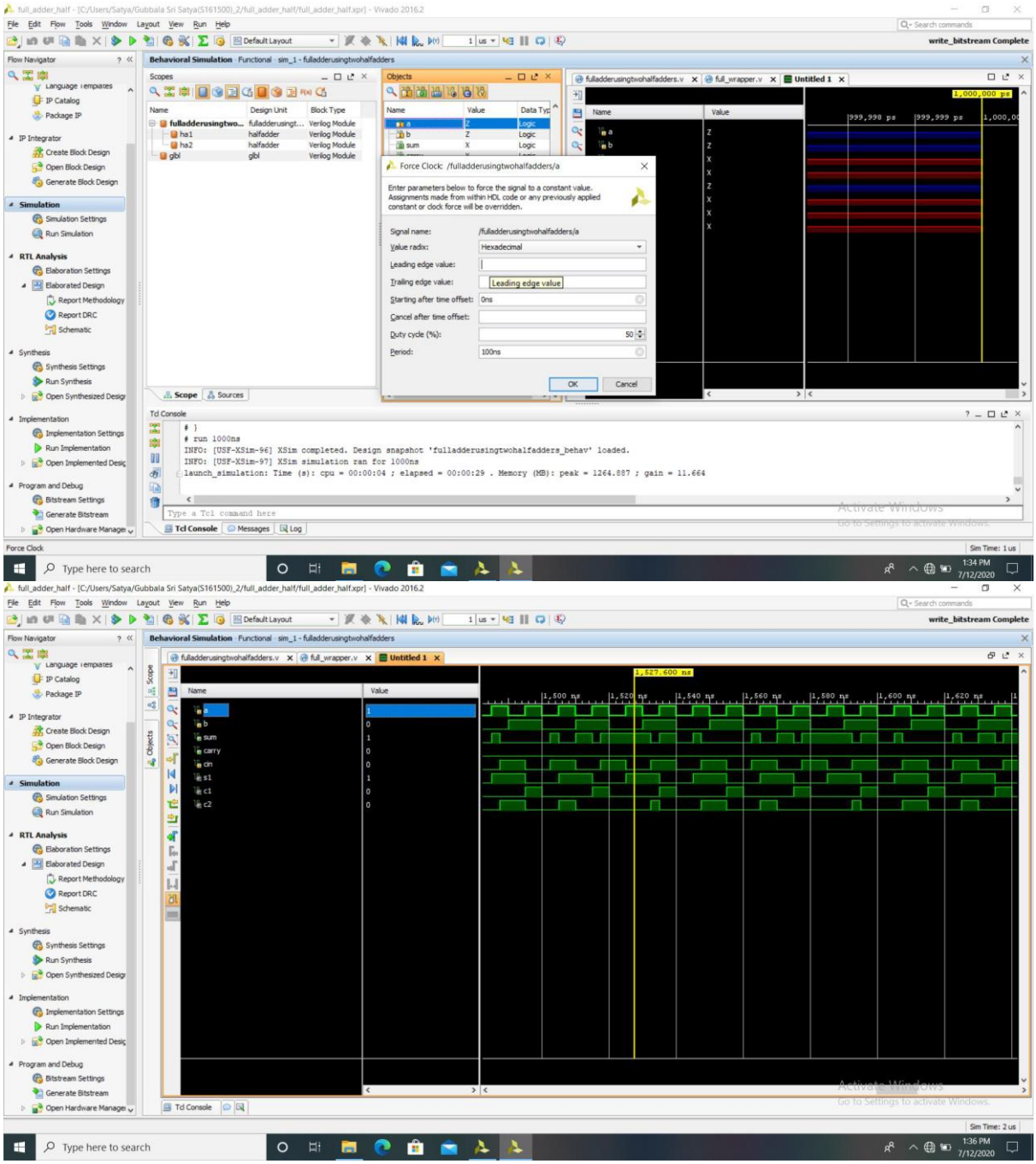
6. Now you have to write code for full adder. You can instantiate half adder two times for doing full adder. Below two pictures are the codes for main program and test bench.



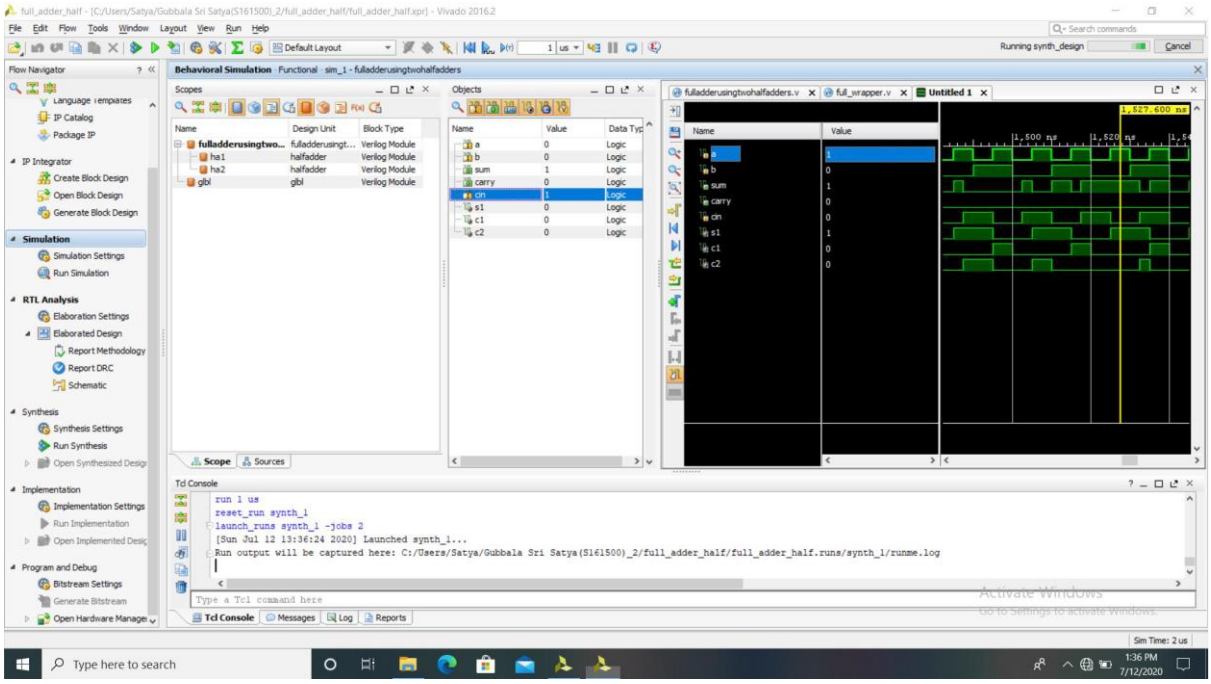
7.Then save the file and click on RTL Schematic. Assign the Package pins in the Scalar ports menu.

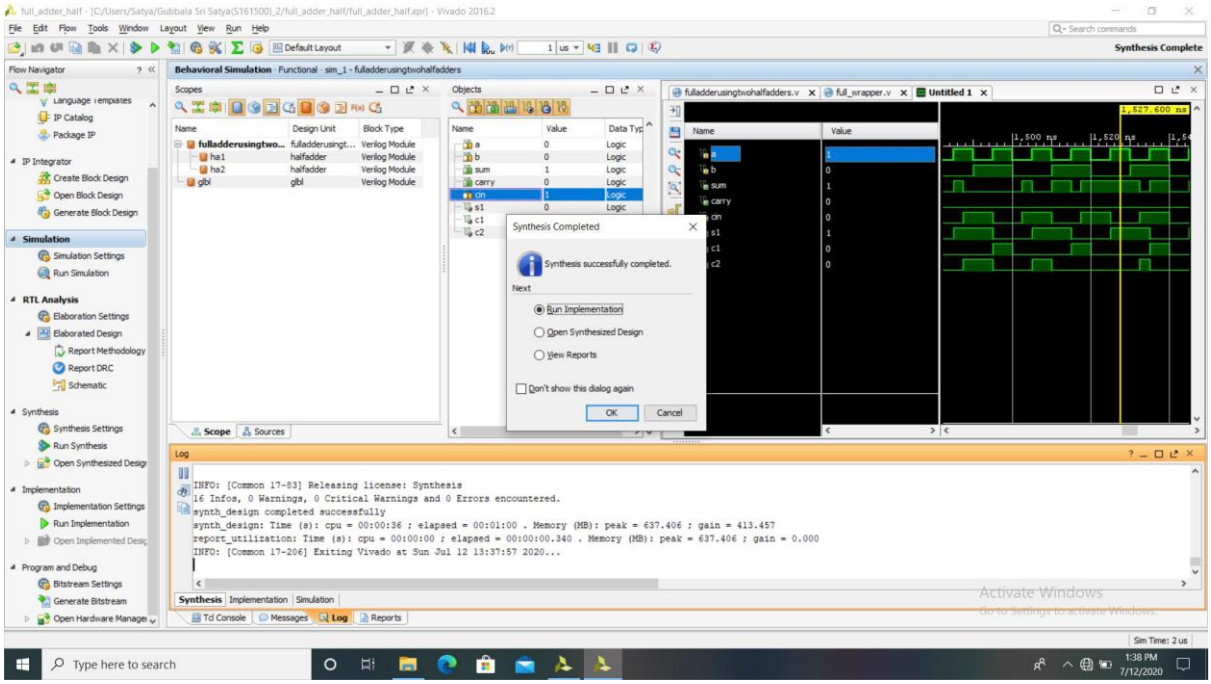


8.Click on Run simulation. Enter the leading edge and trailing edge values when you click on force clock option. Click on Run for 1 micro second and see the output.

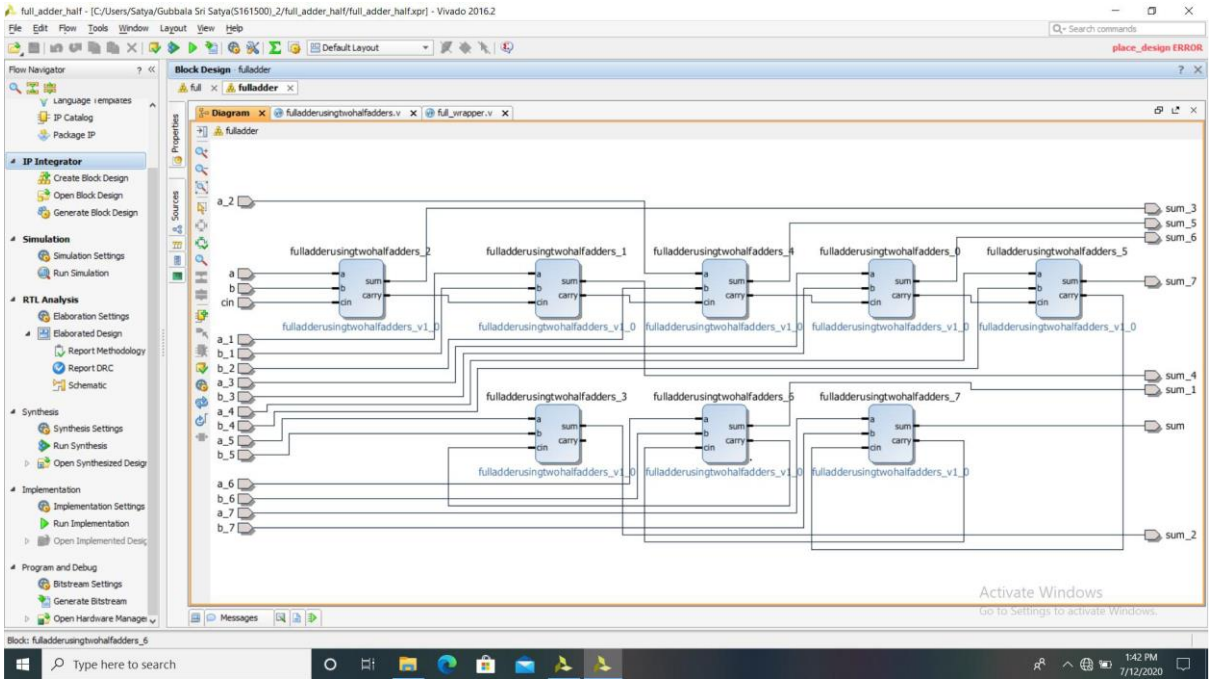


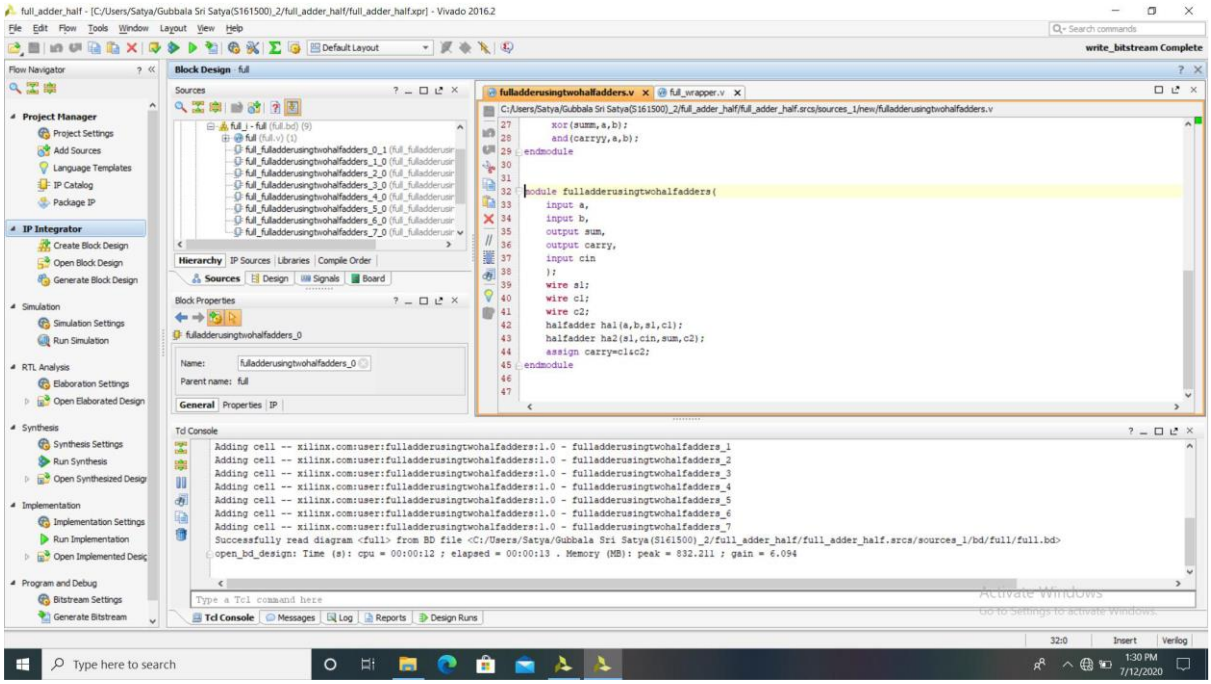
9.Click on Run Synthesis then Implementation and then generate bi stream. And generate IP for full adder.



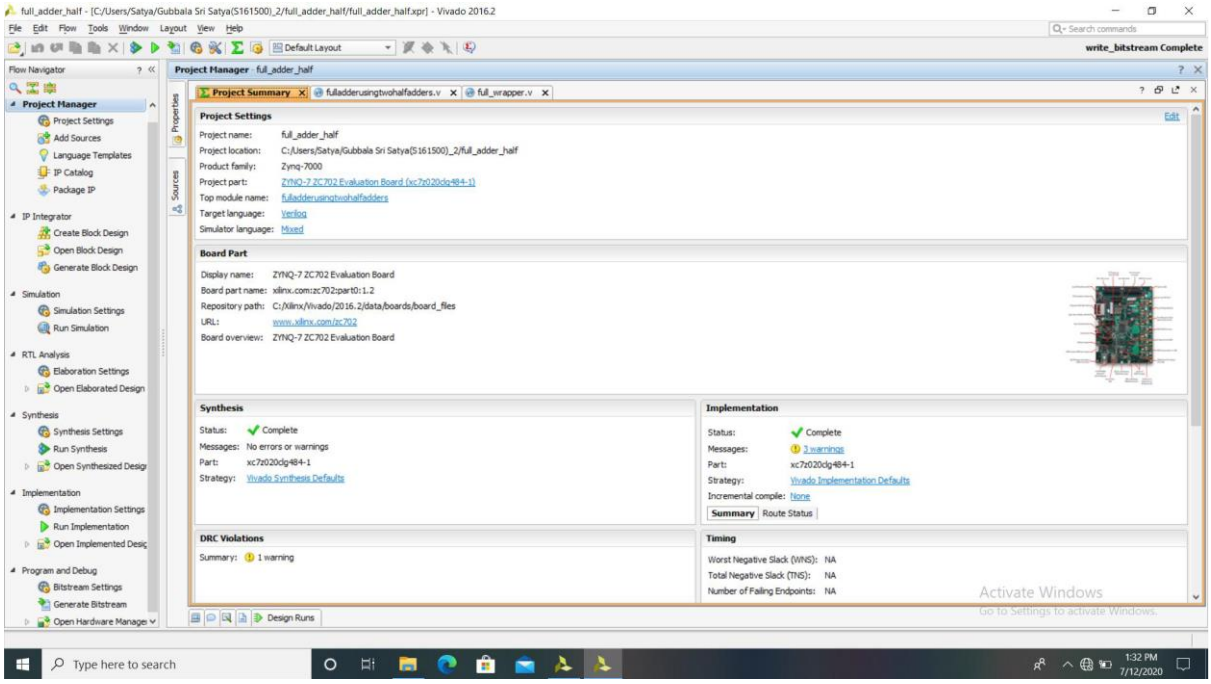


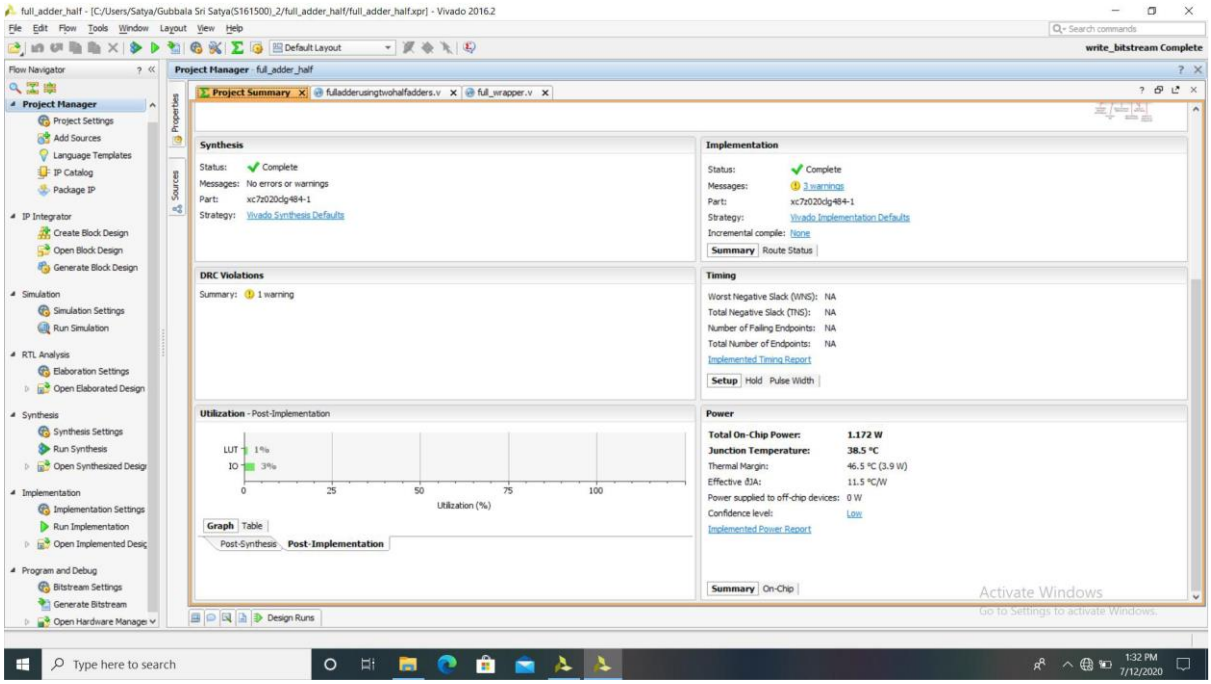
10.Cascade 8 full adders to create 8-Bit Full Adder. Save the file and Validate the design and create hdl wrapper for this design. And Run Synthesis, Implementation, and Generate Bit stream.





11.The over all progress for this project can be seen in the Project Manager.





Result:8-Bit adder is successfully created.