EE2003 - Computer Organization
Vivado Installation

Important Instructions before installing Vivado:

- Vivado 2020.2 installation requires 73GB of disk space. After installation, it will consume around 47GB of disk space. Make sure that you are comfortable with this. If you don't have enough space, don't install it.
- Follow the instructions carefully. You need to register your account to install it. I have provided instructions for both Windows and Linux. For mac users, Vivado is not supported :/
- You can also simply copy-paste Vivado from IE Lab directly.

Download link:

https://www.xilinx.com/member/forms/download/xef.html?filename=Xilinx_Unified_2020.2_1118_1232_Lin64.bin

Instructions:

Step1: Click Xilinx Unified Installer 2020.2: Windows Self Extracting Web Installer (EXE - 248.44 MB) for Windows and click Xilinx Unified Installer 2020.2: Linux Self Extracting Web Installer (BIN - 354.08 MB) for Linux users

Step2: Register your account and download the installer

Step3: Open the installer.

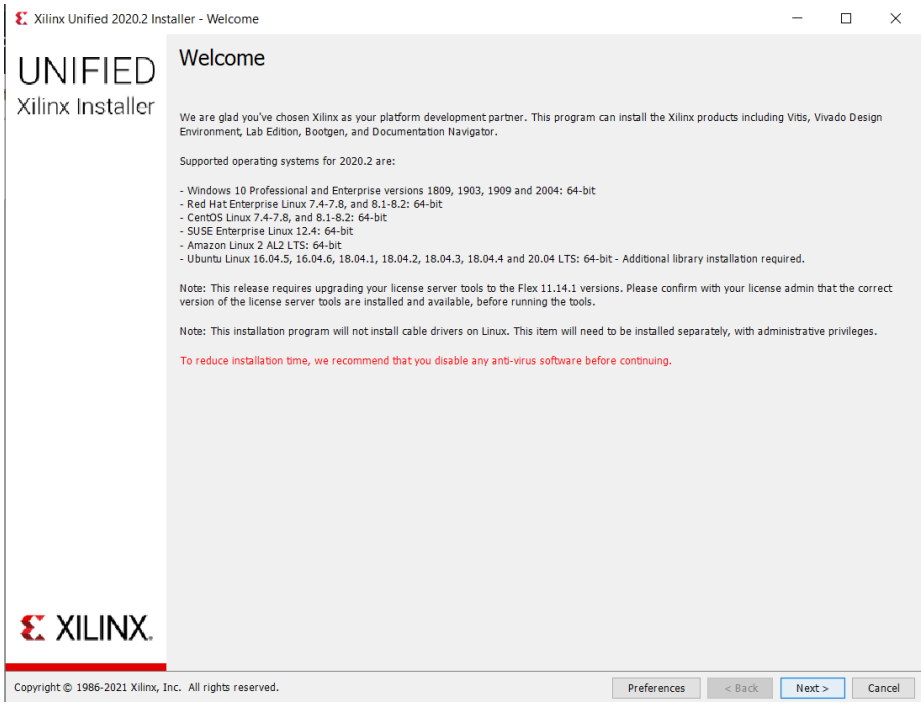
For Windows, simply double-click to open.

For Linux, run these commands in terminal

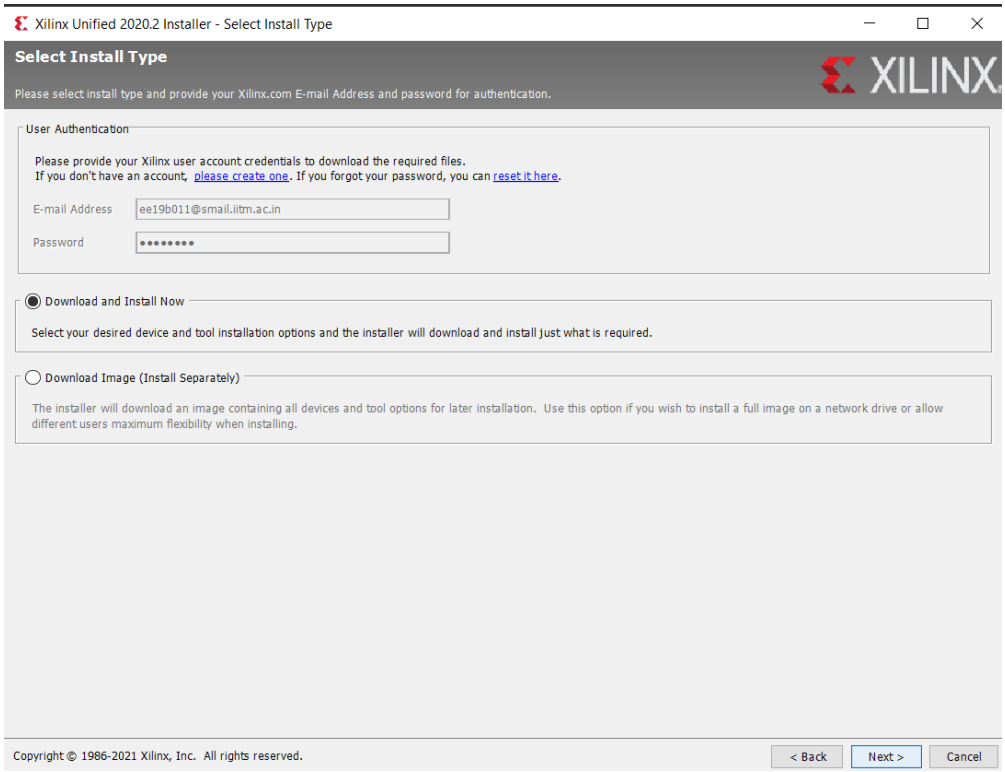
```
~$ sudo apt install libtinfo5 libncurses5

~$ chmod +x Xilinx_Unified_2020.2_1118_1232_Lin64 &&
./Xilinx_Unified_2020.2_1118_1232_Lin64
```

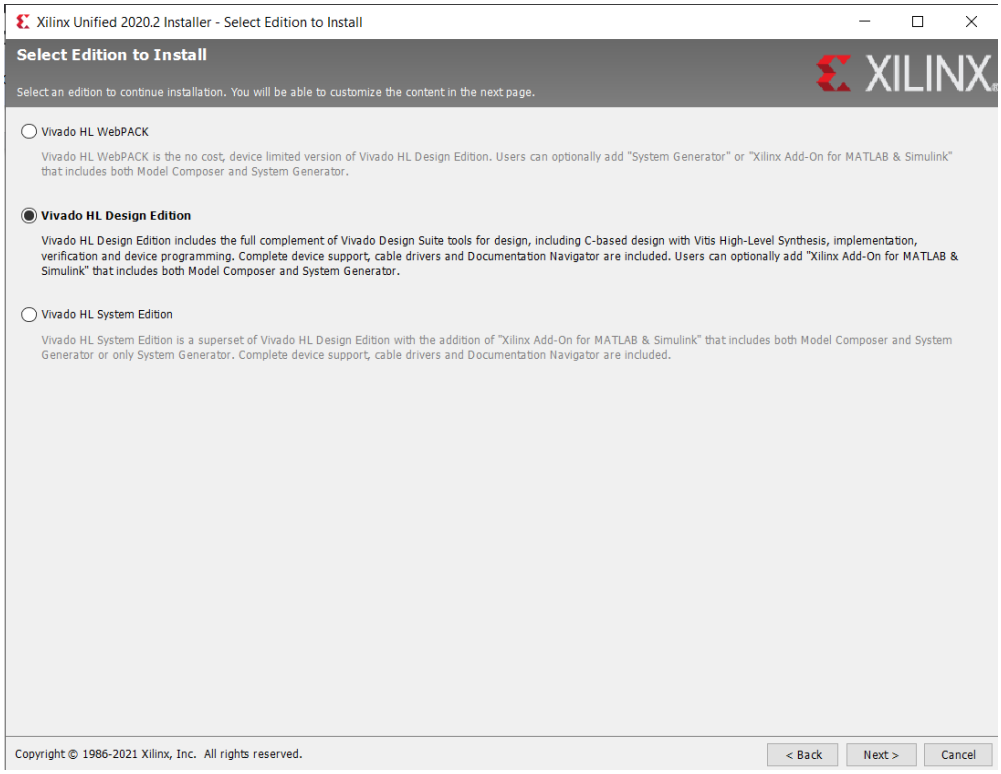
Step4: Click Next



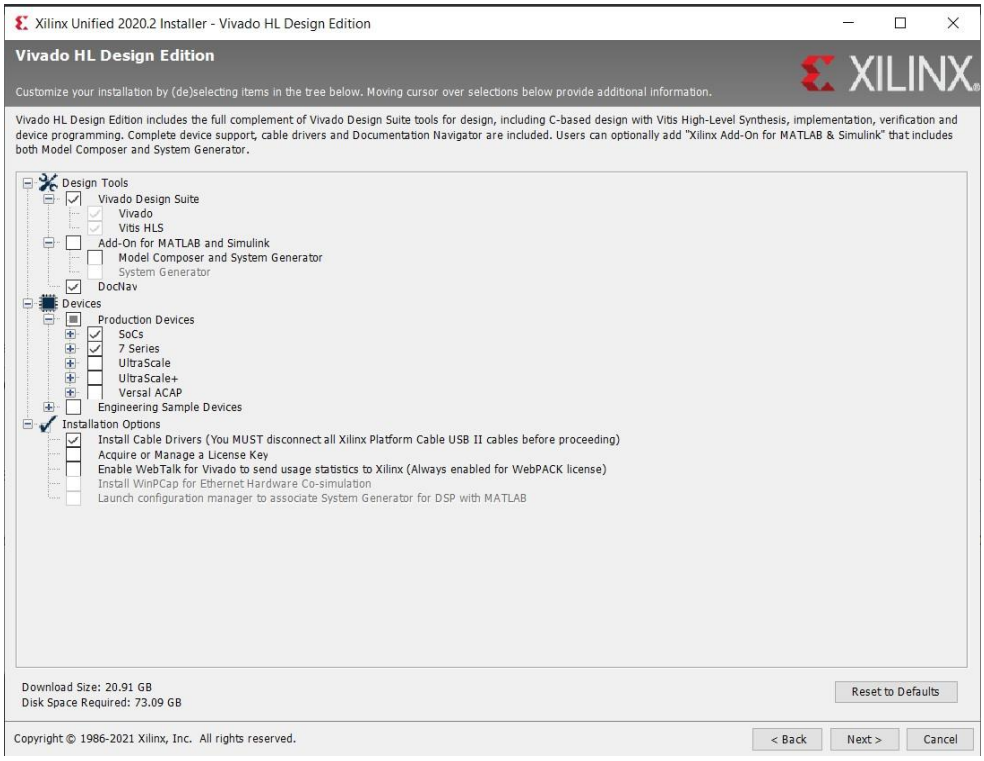
Step5: Enter your email id and password registered in the Xilinx website



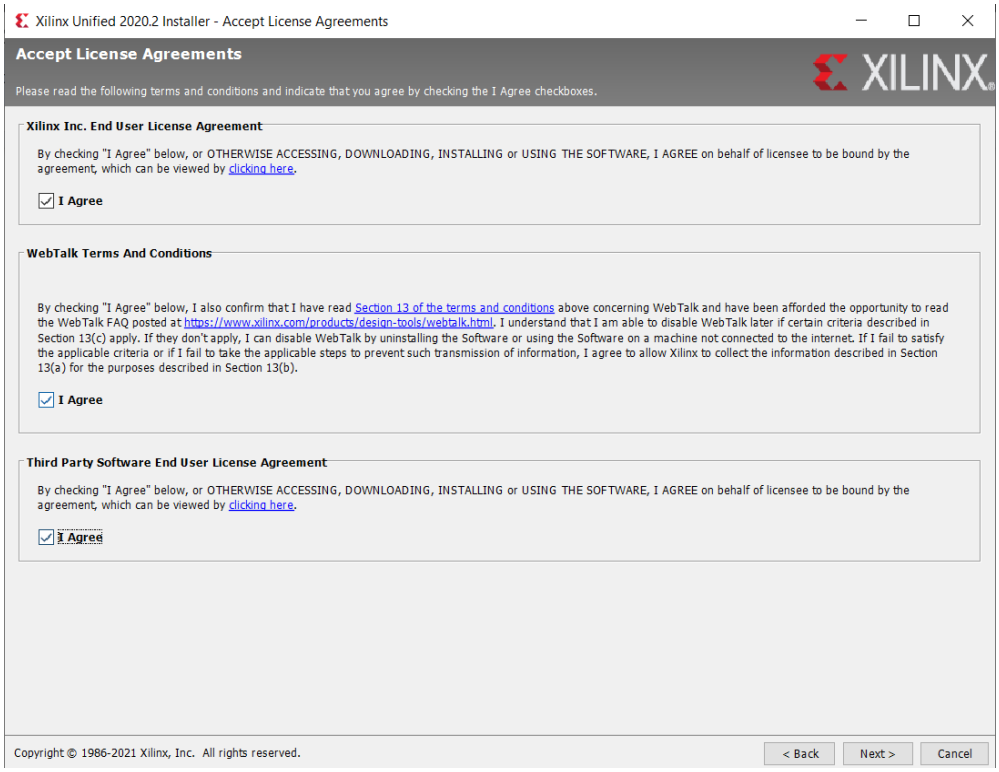
Step6: Select Vivado HL Design Edition



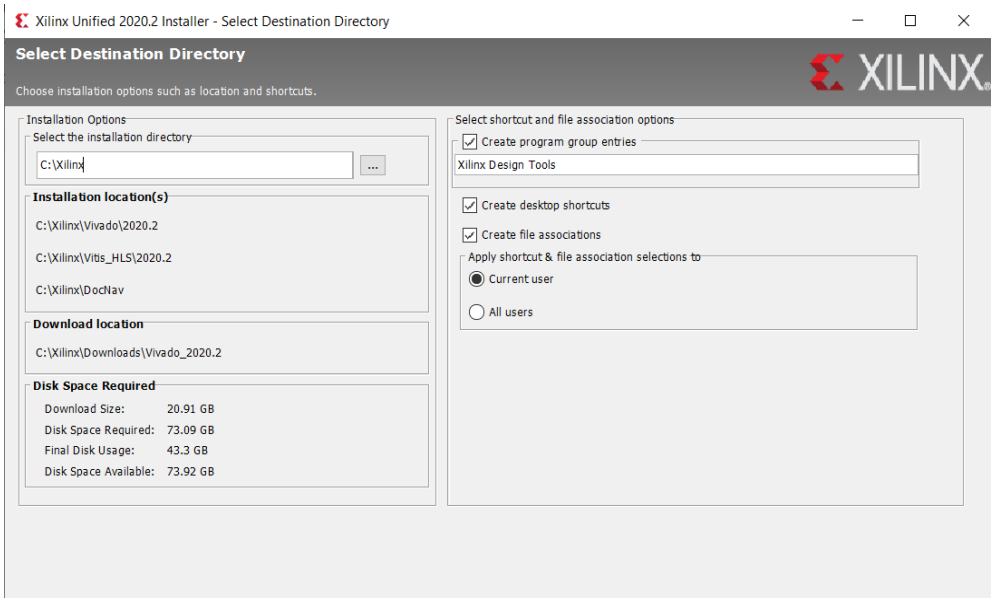
Step7: Select the checkboxes as provided



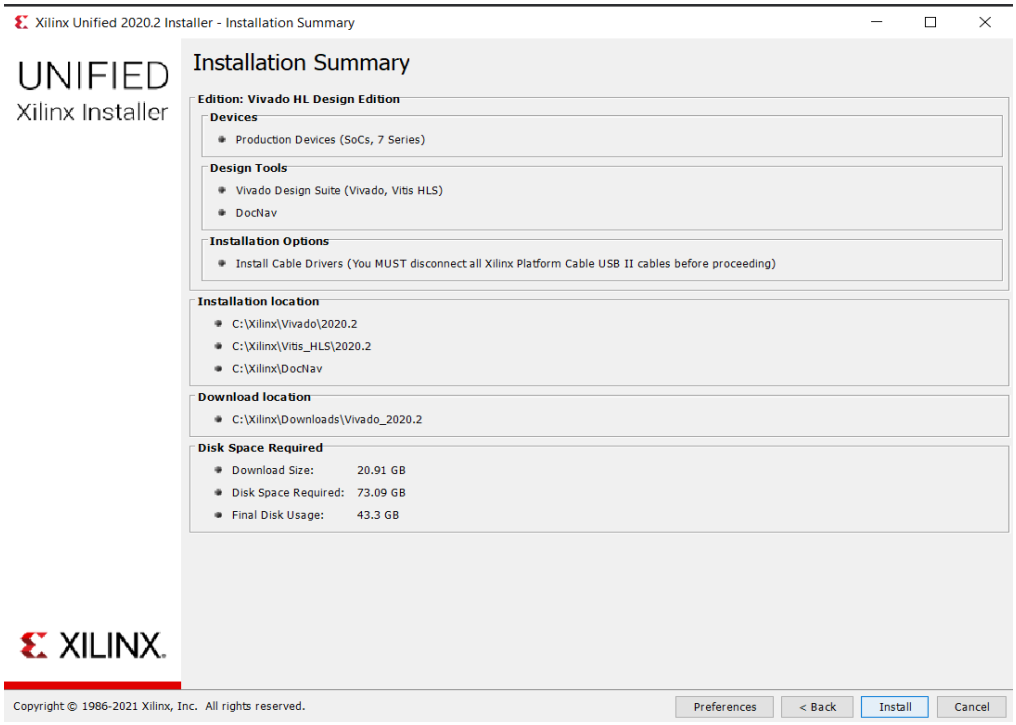
Step8: Agree on all the terms



Step9: Choose your installation directory and click Next.



Step10: Click Install. Note the download location.



Step11: ONLY FOR LINUX USERS

Once installation is finished, you must run these commands.

```
// Run this in terminal
~$ sudo <YOUR INSTALLATION DIRECTORY PATH
>/Vivado/2020.2/data/xicom/cable_drivers/lin64/install_script/install_drivers
/install_drivers

// Make Vivado available in all sessions
~$ echo 'export PATH=$PATH<YOUR INSTALLATION DIRECTORY
PATH>/Vivado/2020.2/bin:$PATH' >> .bashrc

// Now you should be able to run Vivado
~$ vivado
```

Step12: Save PYNQ-Z1 board files

Board file link: https://github.com/cathalmccabe/pynq-z1_board_files/raw/master/pynq-z1.zip

Extract the above file and paste it under

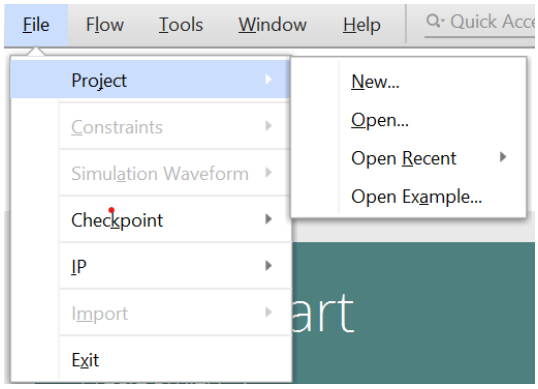
```
<Xilinx installation
directory>\Vivado\<version>\data\boards\board_files
```

Installation is complete!

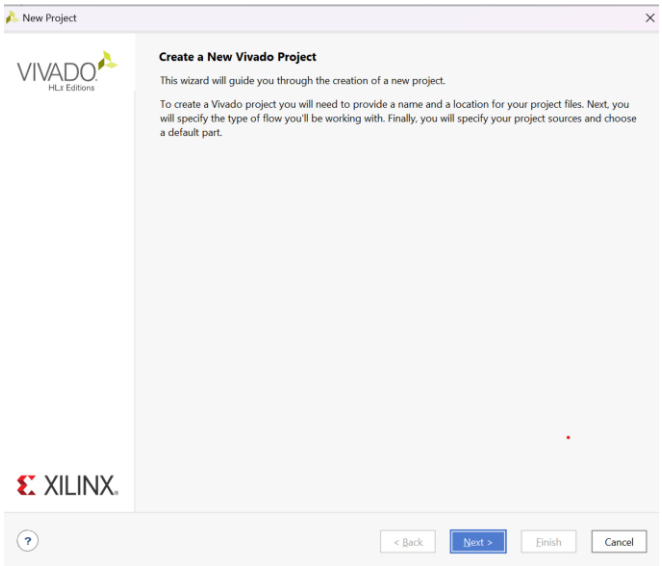
STEPS FOR RUNNING PROJECT WITH EXAMPLE IN VIVADO:

1.Open vivado

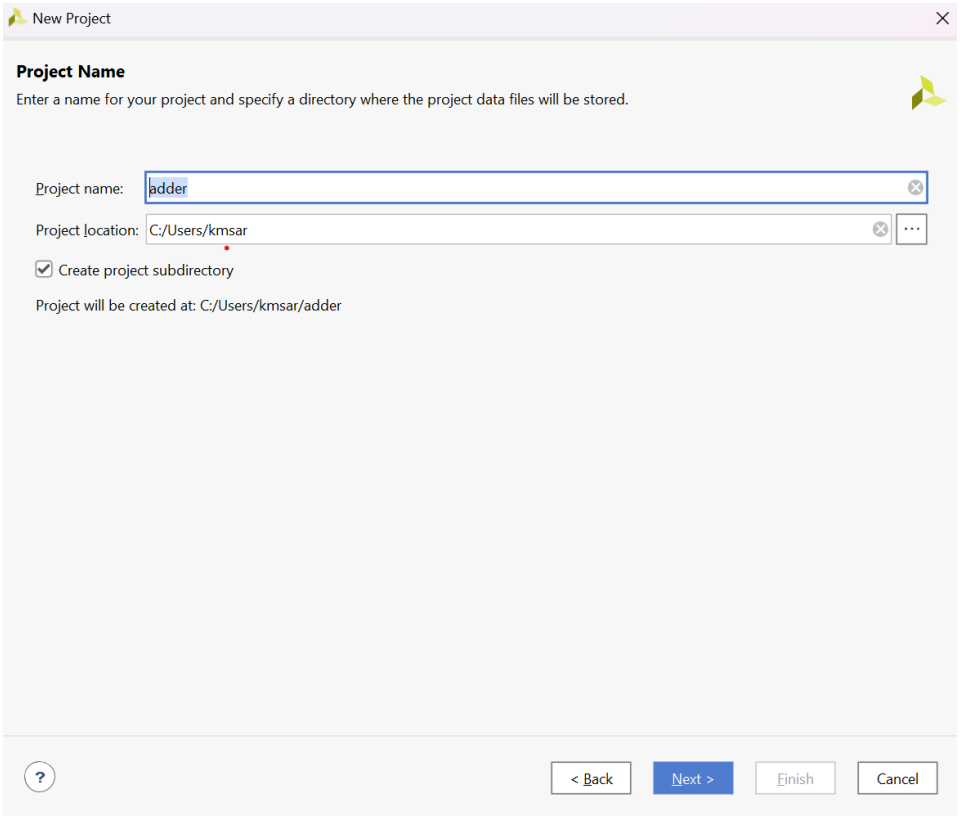
2.Open file →project → new



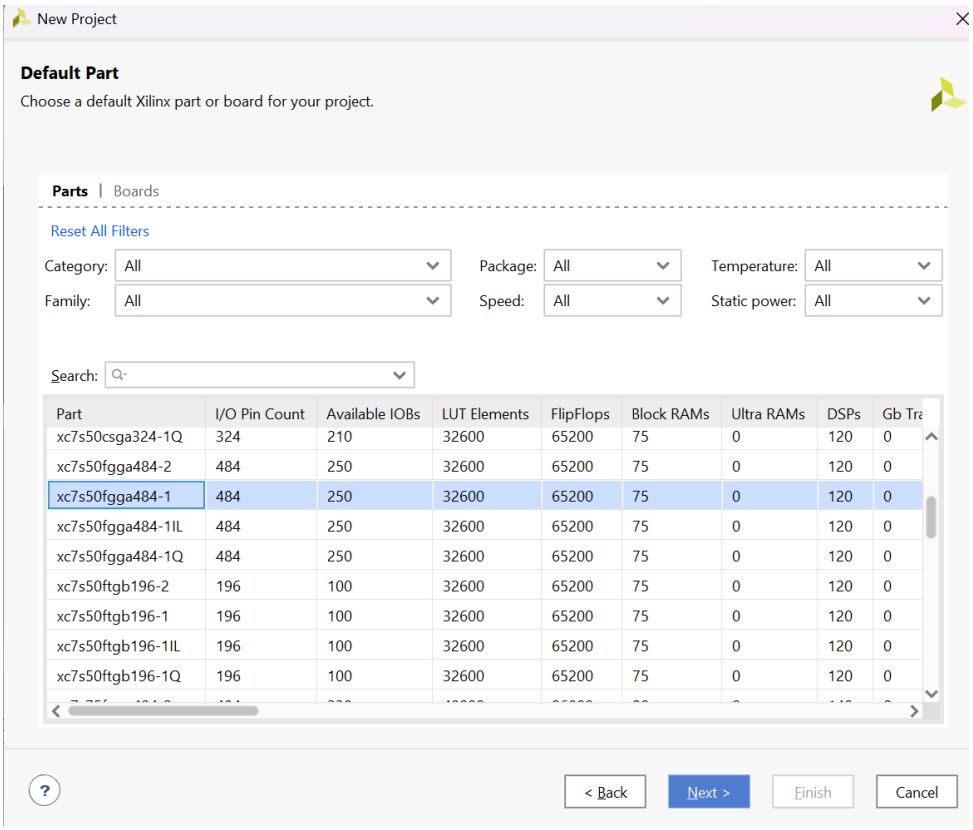
3.click next



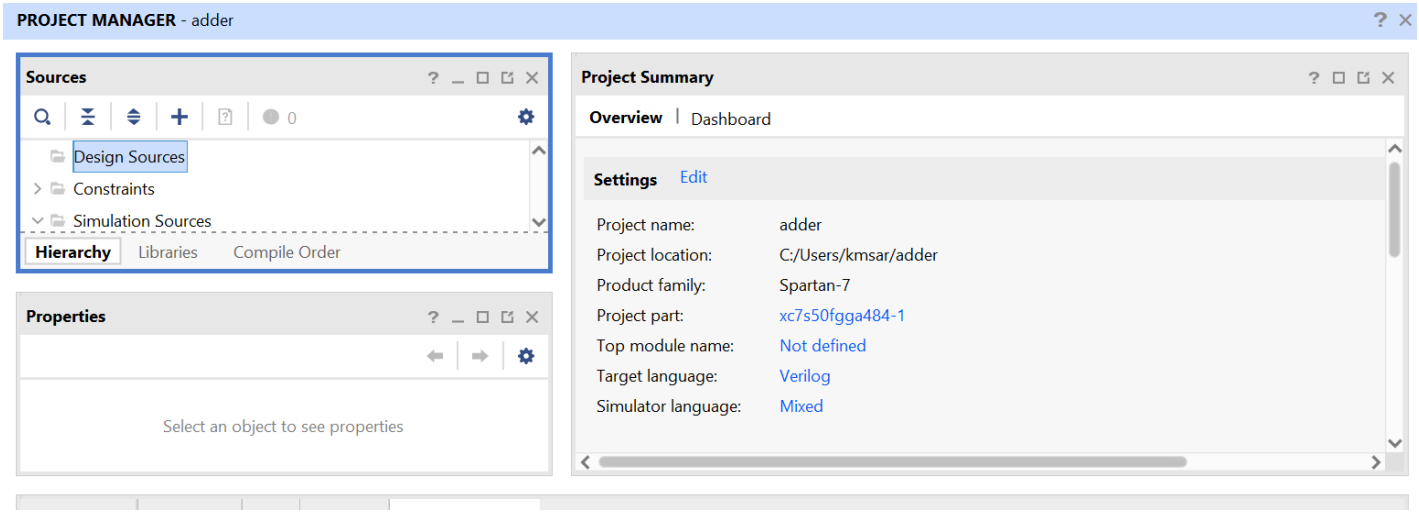
4. enter project name say “adder” and direct project location-> RTL project



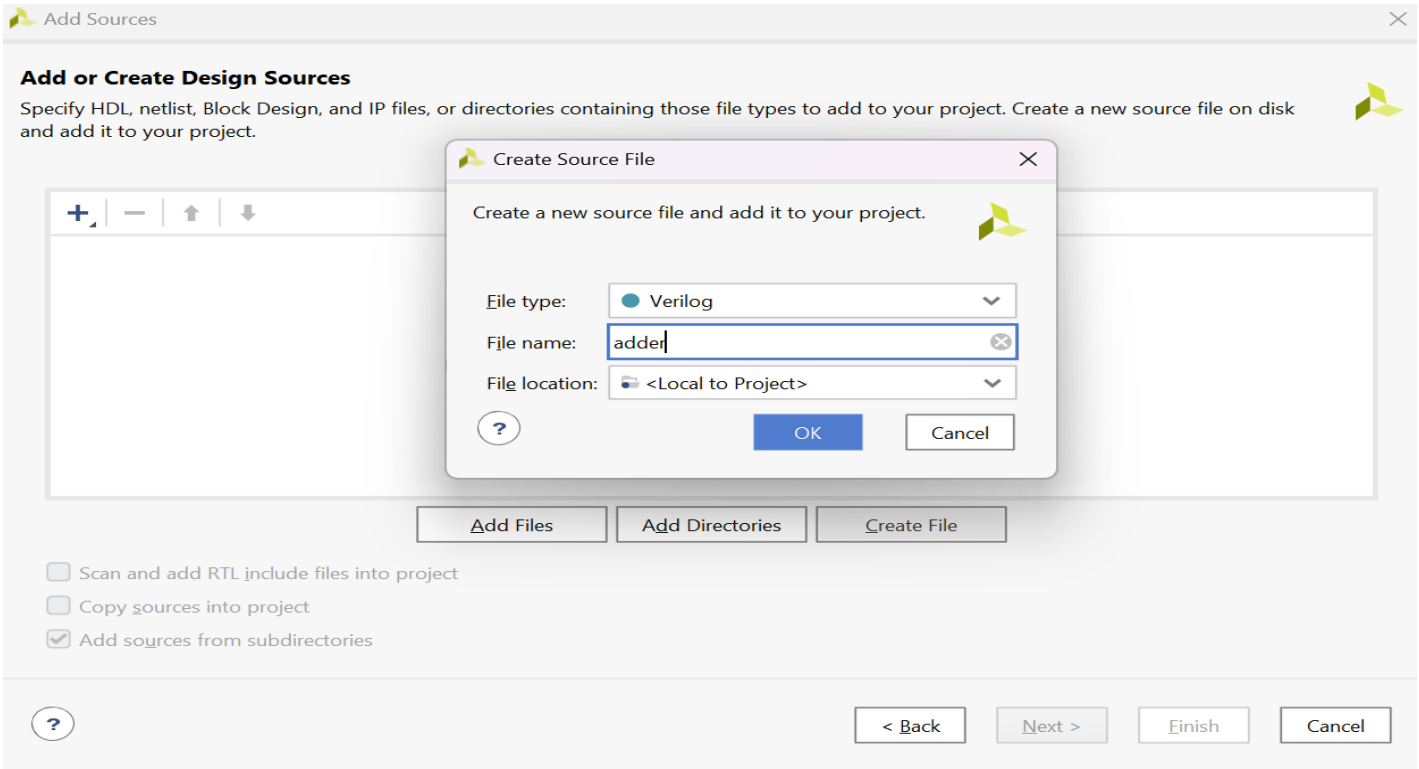
5.choose fpga board →next→finish



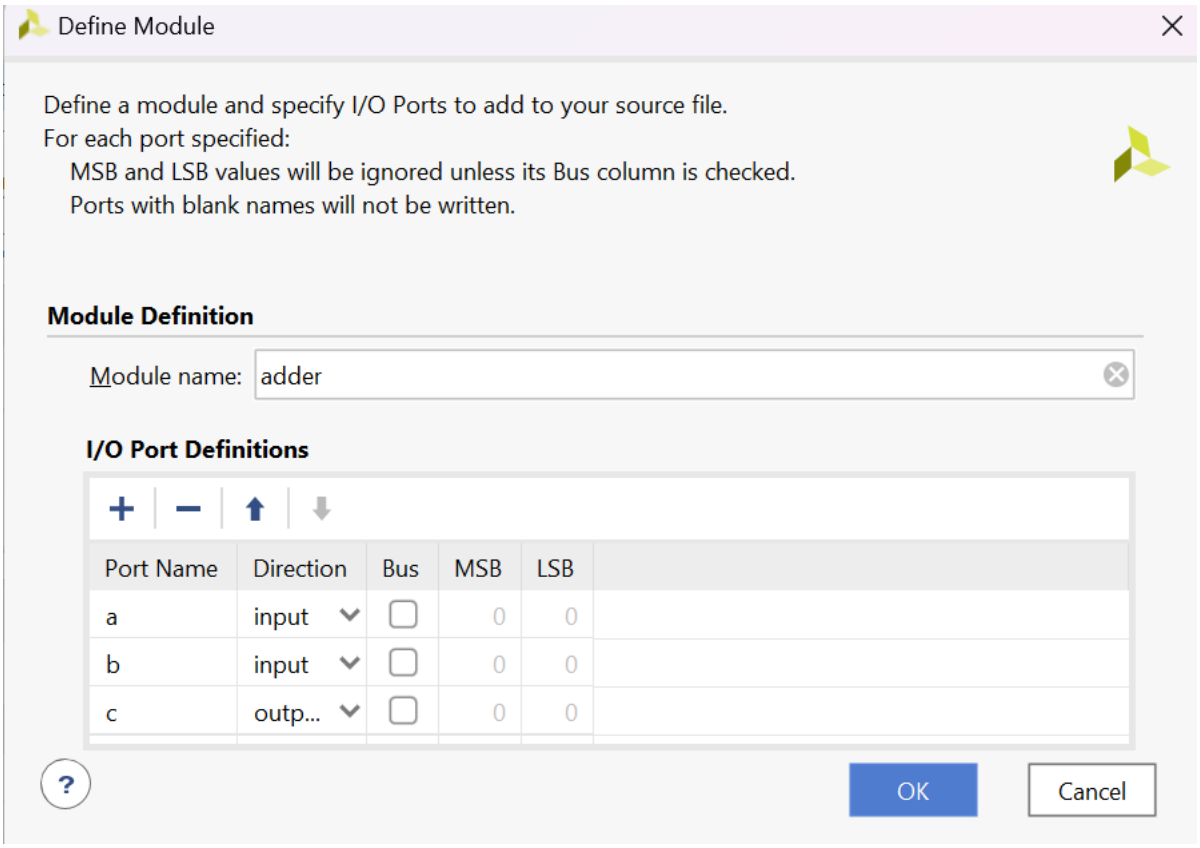
6.right click design sources→add new sources→add or create design sources→next



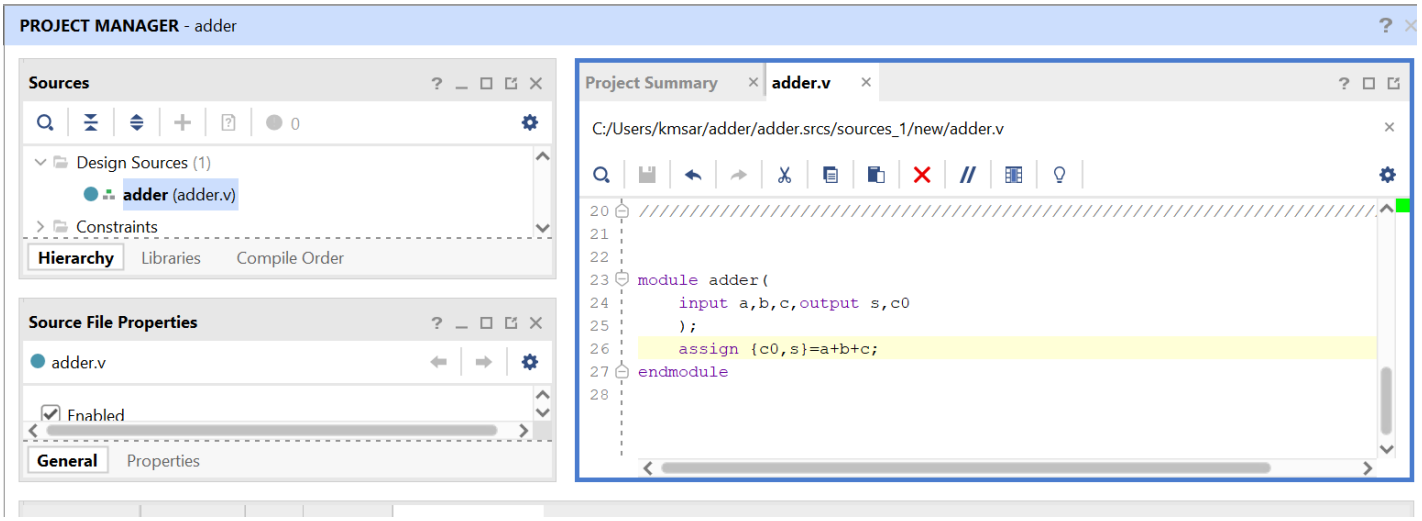
7.click “create file” →type file name(here adder)→ok



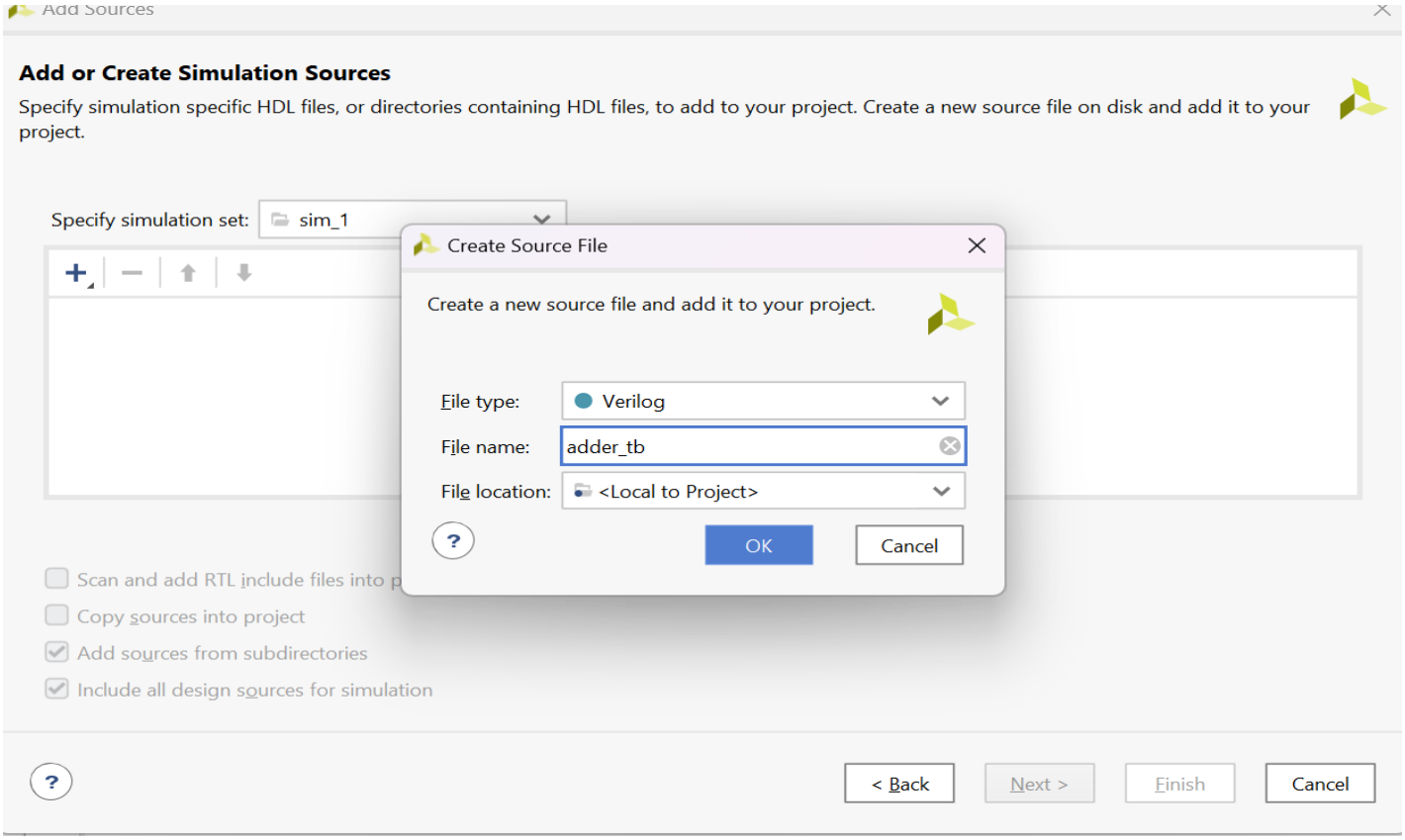
8.add your IO ports(not mandatory as you can add in program too)→ok

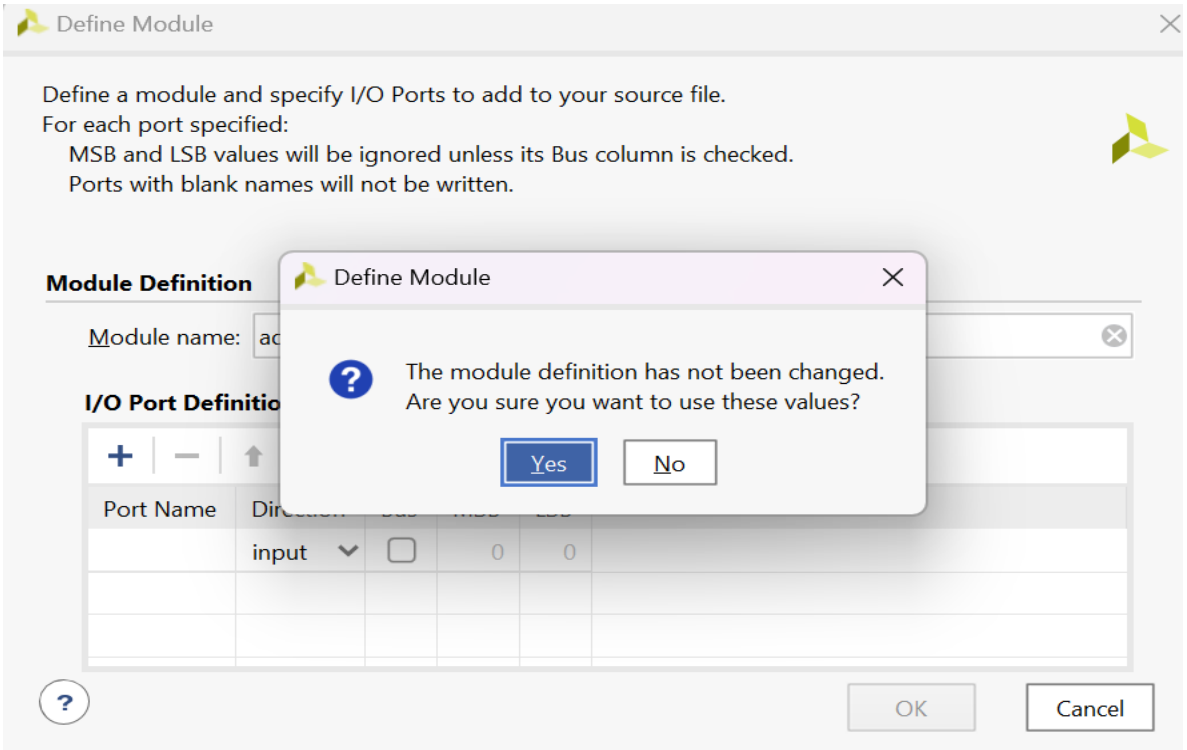


9.double click “adder” and type the program and check your syntax by the indication of green color. If it is showing red color then there is some error in program.

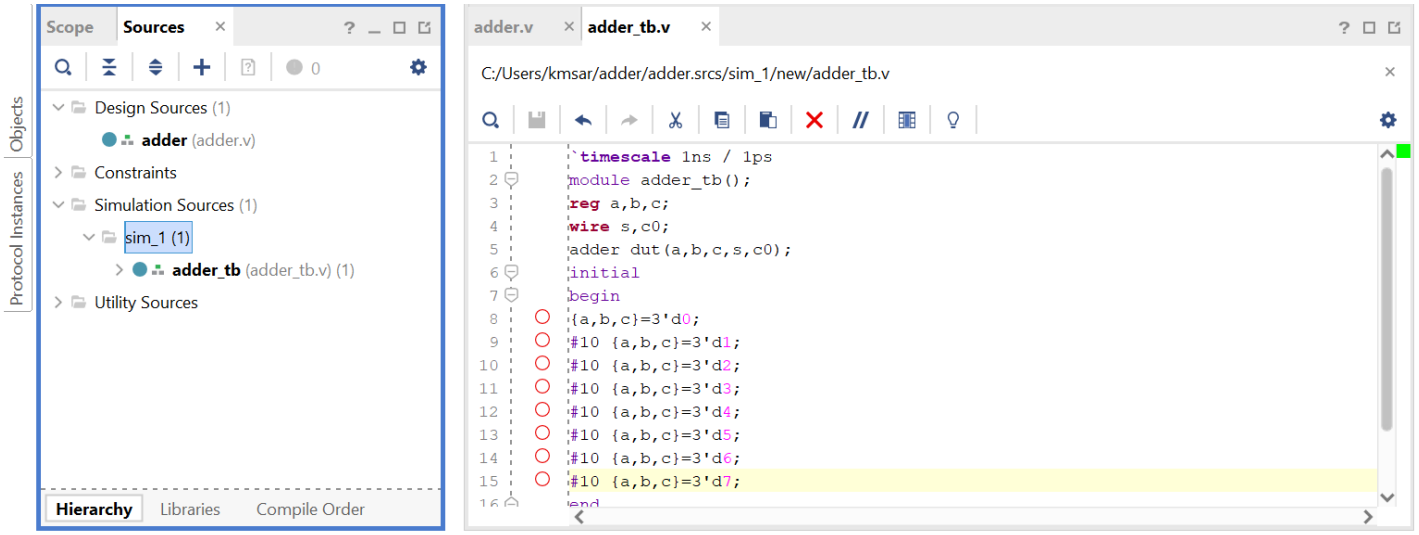


10.To add testbench right click “simulation sources”→add sources→add or create simulation sources→create file(here adder_tb) with no IO ports (as test bench has no IO ports)→finish

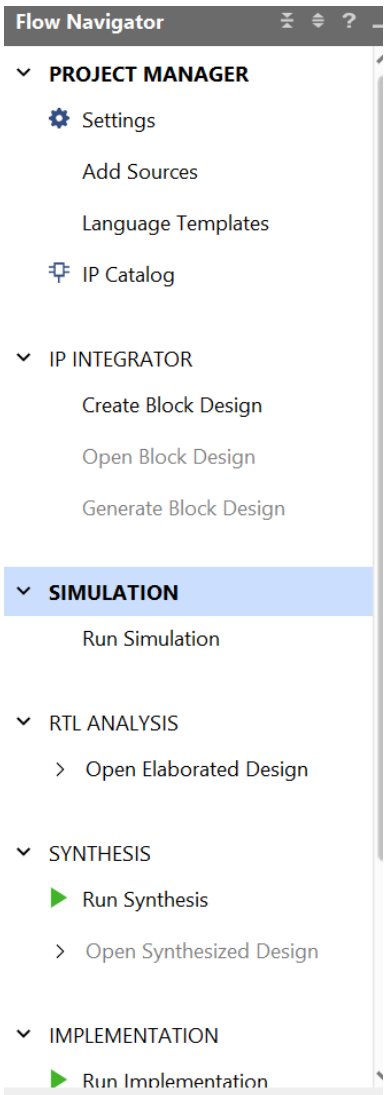




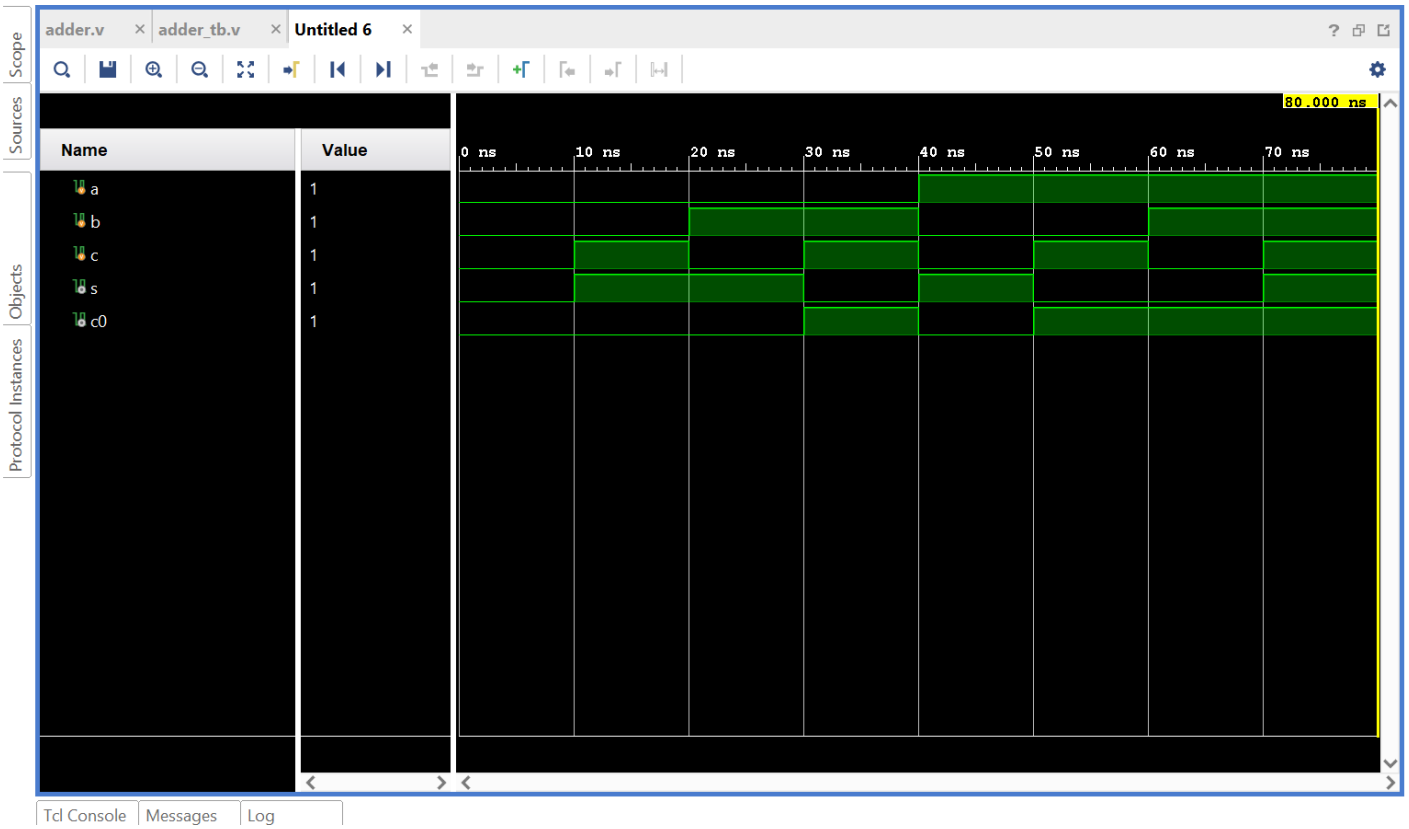
11.Click Sim_1→ click your simulation file(here adder_tb)→type the testbench code



12.Run simulation after saving testbench



13.Observe the waveforms and compare the waveforms with theoretical outputs



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