## Develop Your Projects

During development, you can use the Vivado Design Suite. You can implement project files in your project. Run.bat file will be used only evaluation phase by us.

## Arrange Environment Files

- Open Run.bat file using the text editor.
- You must arrange the first line according to the installation directory. Under the installation directory, there must be a "settings64.bat" file. You should give this file path in the first line.

```
call C:\Xilinx\Vivado\2017.4\settings64.bat

mkdir Simulation_Files
cd Simulation_Files

::Register Simulation
call xvlog ../Register.v
call xvlog ../RegisterSimulation.v
call xvlog ../Helper.v
```

## Example Submission Files

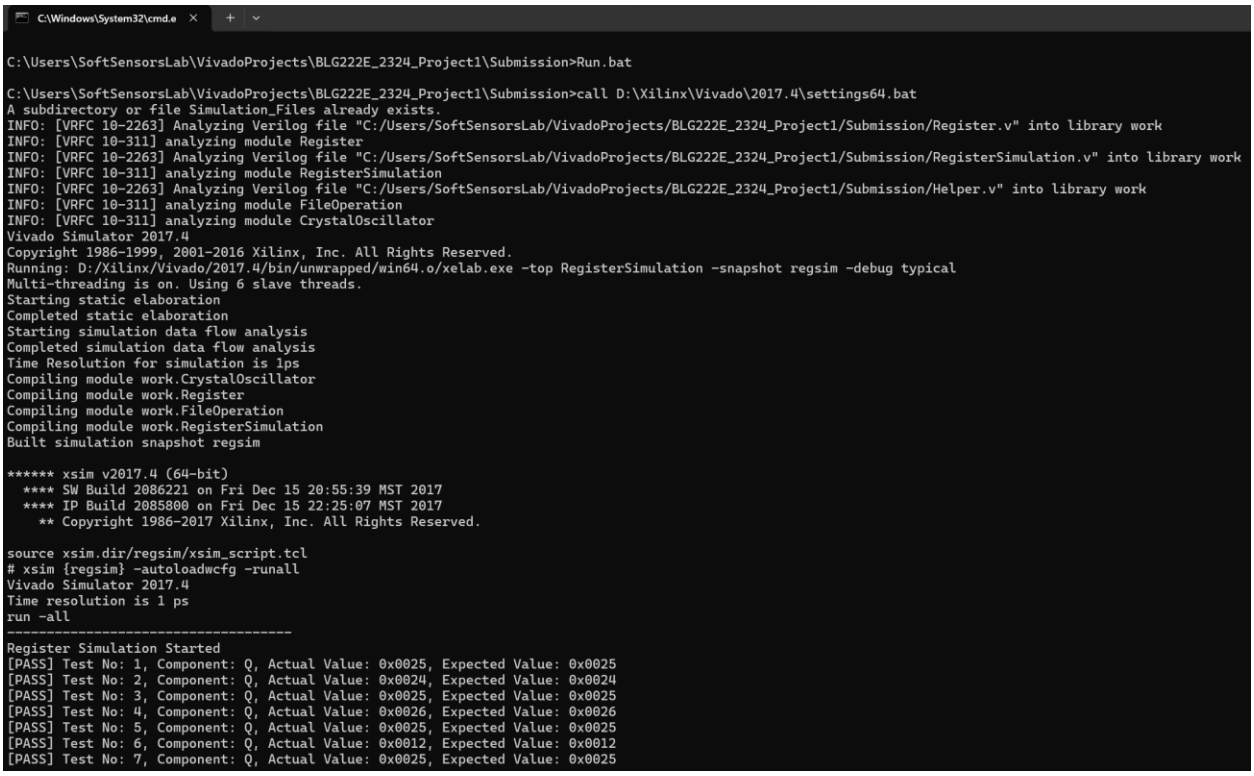
The required project files are given under "ExampleSubmission.zip" files. You must use these modules **without** changing names. The explanation for each file is given below. **The files must be the same as given.** Please do not put files in a folder. **If you do not submit it as ExampleSubmission.zip, the evaluation may not execute. You may get ZERO points.**

| Name | Explanation | Require Edit |
|---|---|---|
| Register.v | Register Module | YES |
| RegisterSimulation.v | Simulation Test Bench of Register Module. | You can add new tests to the given test scenario. |
| RegisterFile.v | Register File Module | YES |
| RegisterFileSimulation.v | Simulation Test Bench of Register Module | You can add new tests to the given test scenario. |
| AddressRegisterFile.v | Address Register File Module | YES |
| AddressRegisterFileSimulation.v | Simulation Test Bench of Address Register Module | You can add new tests to the given test scenario. |
| InstructionRegister.v | Instruction Register Module | YES |
| InstructionRegisterSimulation.v | Simulation Test Bench of Instruction Register Module | You can add new tests to the given test scenario. |
| ArithmeticLogicUnit | Arithmetic Logic Unit Module | YES |
| ArithmeticLogicUnitSimulation.v | Simulation Test Bench of Arithmetic Logic Unit Module | You can add new tests to the given test scenario. |
| Memory.v | Memory Module | NO |
| RAM.mem | The data file of memory module | You can add new tests to the given test scenario. |
| ArithmeticLogicUnitSystem.v | Arithmetic Logic Unit System Module | YES |

| | | |
|---|---|---|
| ArithmeticLogicUnitSystemSimulation.v | Simulation Test Bench of Arithmetic Logic Unit System Module | You can add new tests to the given test scenario. |
| Helper.v | Helper module for the simulation modules. | NO |
| Run.bat | Execution Script of Testbench Files | Only first line |
| Report.pdf | Report file of the Project 1 | You must replace it with your report. |
| GroupMembers.xlsx | Student Numbers and Names of the group members. (If your teammate does not make any contribution, please **DO NOT WRITE** his/her name.) | YES |

## Run TestBench

- Open Command Prompt.
- Go to the project directory to arrange for submission.
- Write “Run.bat” command. Click Enter.




- Under the “Simulation_Files” folder created by “Run.bat”, there are “debug.txt” and “evaluation.csv” files. The “debug.txt file consists of testbench results for you. You should fix your design in case there are failed cases. The “evaluation.csv” file consists of the same results for the automatic evaluation system.