

# Lab Submission System

We will be using a web based lab development and submission system through this course. The purpose of this web system is two fold: 1) it allows you to develop CUDA applications without the need to buy and/or setup a CUDA system, and 2) it allows us to grade your more efficiently, uniformly, and promptly. This document describes the online system, walking through the pages that you will see, and describing a sample submission.

## Web System

### System Flow

### Insertion Points

### Logging and Debugging

Logger		
Level	Location	Message
Trace	main : 26	Read arguments 9
Trace	main : 35	The input length is 100
Trace	main : 54	Block dimension is 32
Trace	main : 55	Grid dimension is 4

Figure 1: Logging View

Timer			
Kind	Elapsed Time (in seconds)	Line	Message
Generic	0.000634308	29	Importing data and creating memory on host
GPU	0.099005559	37	Allocating GPU memory.
GPU	0.00002367	44	Copying input memory to the GPU.
Compute	0.000033975	57	Performing CUDA computation
Copy	0.000016072	63	Copying output memory to the CPU
GPU	0.000076214	68	Freeing GPU Memory

Figure 2: Timing View

## Timing Code

## Previous Attempts

## Walk Through

## Behaviors

While developing the labs, you may encounter one or more of the following behaviors.

### No Error

GPU Computing Problems

HomeMP1MP2MP3

ProblemCodeAnalysis

Timer

I Kind	I Elapsed Time (in seconds)	I Line	I Message
Generic	0.00051813	25	Importing data and creating memory on host
GPU	0.114407421	33	Allocating GPU memory.
GPU	0.000045172	40	Copying input memory to the GPU.
Compute	0.00004458	53	Performing CUDA computation
Copy	0.000020888	59	Copying output memory to the CPU
GPU	0.000118923	64	Freeing GPU Memory

Logger

Level	Location	Message
Trace	main : 31	The input length is 100
Trace	main : 50	Block dimension is 32
Trace	main : 51	Grid dimension is 4

Attempts

Dataset #	Result	Run Time	Time
0	Solution is correct.	0.153807114 sec	less than a minute ago

Figure 3: Solution is Correct

This means that no errors were found while running the program. Your program has been checked against the expected solution of the dataset you selected. Note that it might be the case that the program may run correctly on one dataset and not the other.

## Solution is Incorrect

GPU Computing Problems

HomeMP1MP2MP3

ProblemCodeAnalysis

Timer

I Kind	I Elapsed Time (in seconds)	I Line	I Message
Generic	0.00060047	25	Importing data and creating memory on host
GPU	0.09123867	33	Allocating GPU memory.
GPU	0.000022701	40	Copying input memory to the GPU.
Compute	0.000033956	53	Performing CUDA computation
Copy	0.000015796	59	Copying output memory to the CPU
GPU	0.000078288	64	Freeing GPU Memory

Logger

Level	Location	Message
Trace	main : 31	The input length is 100
Trace	main : 50	Block dimension is 32
Trace	main : 51	Grid dimension is 4

Attempts

Dataset #	Result	Run Time	Time
0	The solution did not match the expected results at column 0 and row 0. Expecting 488 543 but got 935 796.	0.141575006 sec	less than a minute ago
0	Solution is correct.	0.153807114 sec.	less than a minute ago

Figure 4: Solution is Incorrect

## Compilation Failed

The error message

## Program Terminated due to Timeout

The most likely cause of this error is that you have inadvertently placed an infinite loop either in your CPU or GPU code. Part of the reason for this behavior is that the system ensures fairness (i.e. you should not hog down the machine). To ensure fairness, the system is configured to terminate long running processes. When you see this error, you have hit that timeout limit.

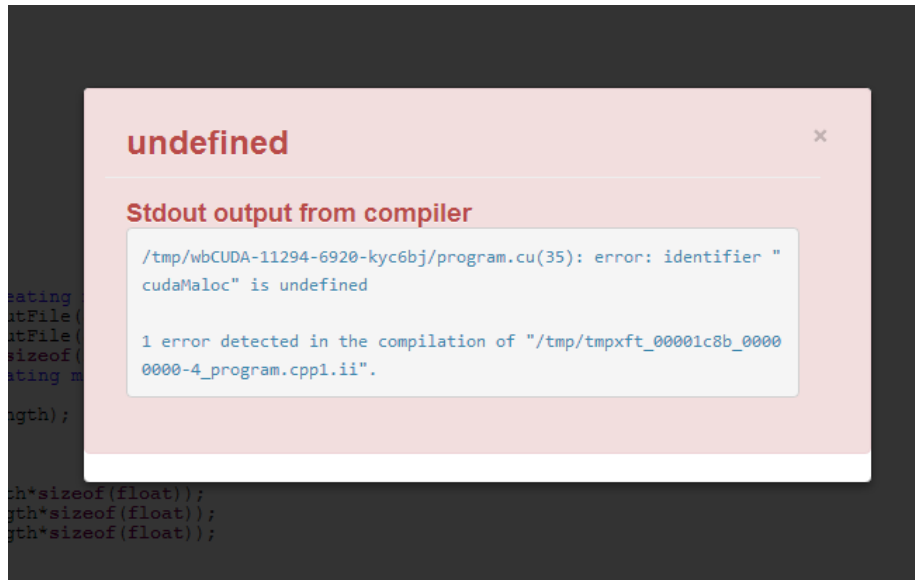


Figure 5: Compilation Failed

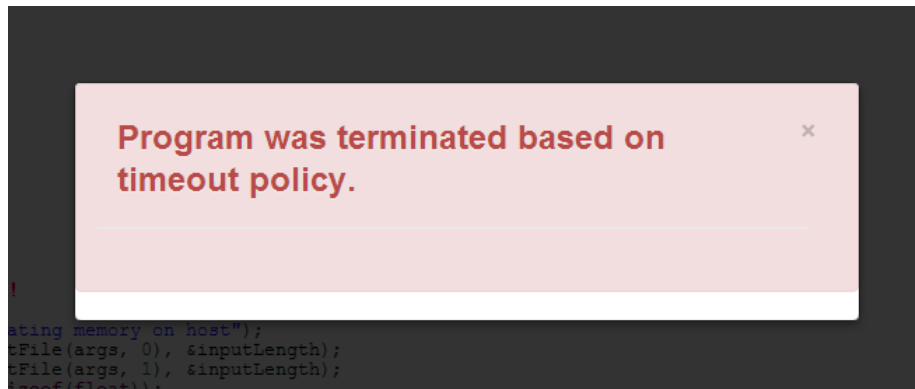


Figure 6: Program Terminated

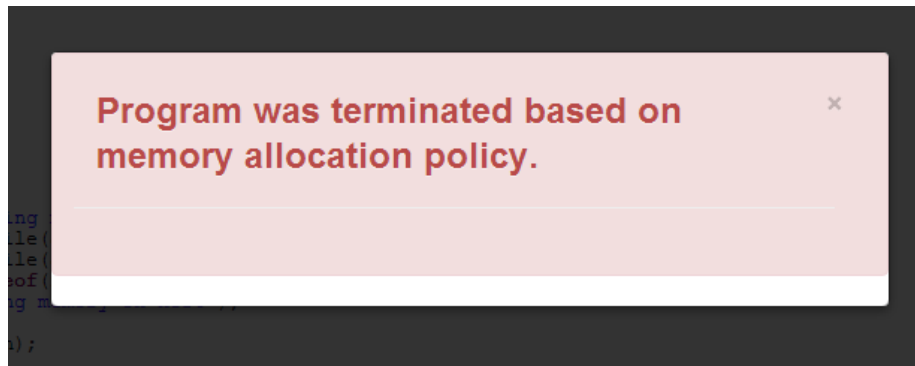


Figure 7: Memory Allocation

## Memory Allocation Error

## Sandboxing Error

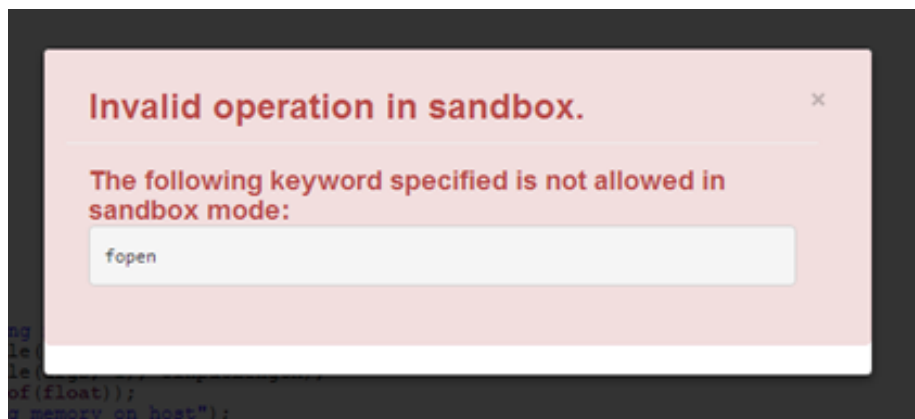


Figure 8: Sandbox Error

## Suggestions

## Grading

Grading is performed based on criteria that are specific for each lab. Aside from the program submitted compiling and running, we also look at how fast the program is in relation to the other submissions.

## System Requirements

A recent web browser is the only requirement for using and submitting labs in this course.