Find time consuming regions of code in PrimeSingle LAB # 1 (Locating time consuming Regions)

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- 1. Compile and run PrimeSingle.exe
 - a. Invoke the command window for Intel compiler for 32 bi applications from desktop.
 - b. Move to c:\labday[1|2]\ThreadingClassIDF\PrimeSingle directory
 - c. Compile the PrimeSingle.cpp by bld.bat in the Intel C++ compiler command line environment.
 - d. PrimeSingle.exe 1 1000000

📾 Build Environment for IA-32 applications	- 🗆 🗙
Volume in drive C has no label. Volume Serial Number is AOFD-7524	
Directory of C:\labday1\ThreadingClassIDF\PrimeSingle	
10/04/2005 10:58 AM <dir> . 10/04/2005 10:58 AM <dir> . 09/01/2005 03:22 PM 89 bld.bat 09/30/2005 03:515 PM 44 clean_bld.bat 09/30/2005 02:52 PM 4.342 PrimeSingle.cpp 3 File(s) 4.475 bytes 2 Dir(s) 32,950,083,584 bytes free</dir></dir>	
C:\labday1\ThreadingClassIDF\PrimeSingle>bld	
C:\labday1\ThreadingClassIDF\PrimeSingle>icl /O2 /nologo /I//include -D 32 /W3 /Zi /Qoption,link,/fixed:no PrimeSingle.cpp PrimeSingle.cpp	WIN
C:\labday1\ThreadingClassIDF\PrimeSingle>PrimeSingle.exe 1 1000000 100%	
78498 primes found between 1 and 1000000 in 3.13 secs	
C:\labday1\ThreadingClassIDF\PrimeSingle>	-

- e. Record the number of primes found
- f. Record the run time
- 2. Analyze the PrimeSingle.exe using VTune to find time consuming regions
 - a. Run Vtune.
 - b. Select "New Project" project.
 - c. Select "Sampling Wizard".

New Proje	ct				? 🔀
<u>S</u> elect one (C <u>a</u> tegory:	of the following to help you o Analyzer Projects	reate a proje	ct and an Activity. Create an Activity with the	~	OK Cancel
Sequick F Complet Counter Samplin Call Gra Advance	Performance Analysis Wizard te Setup Wizard in Monitor Wizard ing Wizard aph Wizard eed Activity Configuration		sampling data collector. Using non-intrusive sampling, the VT une analyzer will collect and display system-wide software performance data, including that of your application and operating system.		Help
Project <u>N</u> a Project <u>L</u> o	ame: VTProject3 ocation: c:\ThreadingClas	sMaya\VTPr	oject3	3	

d. Select Next

	tion Wizard ? 👔
	Select type of profiling © <u>W</u> indows*/Windows* CE/Linux* profiling © Java* profiling © . <u>N</u> ET* profiling
	Tuning Assistance Automatically generate tuning advice C One sampling run with minimal advice (application-level tuning - CPI only) A few sampling runs with some advice (application- and basic microarchitecture-level tuning)
Hint:	C Many sampling runs with more advice (application- and microarchitecture-level tuning)

These	Machine Name: Remote
	Application Application to launch: No application to launch:
	C:\ThreadingClassIDF\PrimeSingle\PrimeSingle.exe
	Command line arguments:
	1 1000000
	Working directory:
	C:\ThreadingClassIDF\PrimeSingle\
Hint:	\boxed{M} Modify default configuration when done with wizard \boxed{R} In Activity when done with wizard

f. Click finish.

g. Drill down to module PrimeSingle

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VTPoped3	1 👽 🔍 🖓	Events T	🖓 Thread 🛛 🚳 Module 🔎	Hetepot @ Source	X
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		Instructions Refined Oocklicks Oocklicks per Initiactions Refined (CPI)	44 0.00000010000x 44 0.00000000000x 44 0.10000000000x 44 0.10000000000x	3000000 0	290 3.27 2031 3.27 0 0100
4 + té kens	, 3 events, 1 iten(s) select	ed	All Proces	is Al Thread	
Dutant General Thu Sep 01 17:04:15 2005 decahout: (Pun 1) Thu Sep 01 17:04:19 2005 decahout: (Pun 1)	The Sampling Collector is c Sampling data was succes	allecting samples based on the following even shuly collected	(c) Instructions Potent, Clockde	ka.	

- h. Select only "clockticks" from legend. The Vtune view show TestPrime()is taking highest amount of time when application is run.
- 3. Find out which function is calling TestPrime()
 - a. Create a new activity in VTune.

b. Select "CallGraph Wizard"

he	Machine name: Klocalhost>	ote
	Application to launch:	to launch
	C:\ThreadingClassIDF\PrimeSingle\PrimeSingle.exe	
2001	Command line arguments:	
100	1 1000000	_
	Working directory:	
	C:\ThreadingClassIDF\PrimeSingle\	
Hint	\boxed{M} odify default configuration when done with wizar $\boxed{\Psi}$ Bun Activity when done with wizard	d
Specify the exe	cutable that launches the modules you wish to analyze.	
	Pack Neuth Einich Cancel	Hale

c. Click finish.

d. Scroll to TestPrime() and you will find TestPrime() is called by FindPrime()



4. Calculate the maximum theoritical scaling using two processor and two threads and record