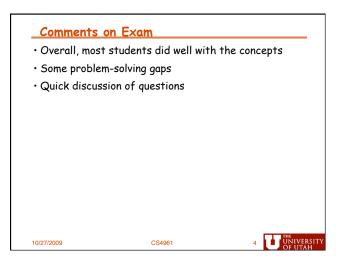
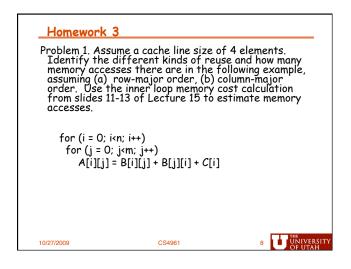


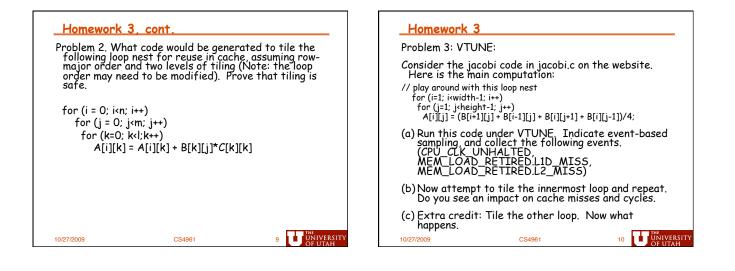
Score Range	Number of Students	Grade
97-100	1	A+
88-93	6	Α
85-87	4	A-
80-83	7	B+
75-79	7	В
72-73	2	B-
59-61	2	С



Exam discussion	Exam discussion
Problem 2:	 b. Given the following code, which is representative of a Fast Fourier Transform:
a. A multiprocessor consists of 100 processors, each capable of a peak execution rate of 2 Gflops (i.e., 2 billion floating point operations per second). What is the peak performance of the system as measured in Gflops for an application where 10% of the code is sequential and 90% is parallelizable?	procedure FFT_like_pattern(A,n) { float *A; int n, m; m = loa m; Key points: main
sequential and 90% is parallelizable?	$ \begin{array}{ll} m = \log_{2}n; & \text{ Key points. Infant} \\ \text{for } (j=0; j < m; j + +) \{ & \text{ dependence on } j \text{ loop,} \\ k = 2, j & \text{ parallelize } I \text{ loop} \\ \text{for } (i=0; i < k; i + +) \\ A[i] = A[i] + A[i \text{ XOR } 2^{j}]; \end{array} $
Key point: Speedup roughly 10, so roughly 20 GFlops	}
	 (1) What are the data dependences on loops i and j? (2) Assume n = 16. Provide OpenMP or Peril-L code for the mapping to a shared-memory parallel architecture.
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(c) Construct a task code to identify t from 1 to n. A cor of Erasthones. Ir starting from 2. of 2 are deleted b repeated with eac A possible sequen	-parallel (similar to producer-c ne set of prime numbers in the numon sequential solution to this this method, a series of all in The first number, 2, is prime ar ecause they cannot be prime h remaining number, up until bu tial implementation of this solu	onsumer) pipelined sequence of integers s problem is the sieve tegers is generated nd kept. All multiples This process is th not beyond sqrt(n). tion is as follows:
for (i=2; i<=n; i++) {		
prime[i] = true;		
for (i=2; i<= sqrt(n);	i++) {	
if (prime[i]) {		
for (j=i+i; j<=n;	j = j+i) { // multiples of i are se	et to non-prime
prime[j] = fo	ilse;	
}		
}		
	a parallelism, buffer for que ences, modify indexiing	ueuing data so
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emember:	Row-m	ajor sto	rage f	or C arrays	6	
r (i=0; i <n; i++)<br="">for (j=0; j<m; j++)<="" th=""><th></th><th colspan="3"><pre>for (j=0; j<m; (i="0;" for="" i++)<="" i<n;="" j++)="" pre=""></m;></pre></th></m;></n;>				<pre>for (j=0; j<m; (i="0;" for="" i++)<="" i<n;="" j++)="" pre=""></m;></pre>		
];;; B[j][i]				i]+B[j][i]
reference	loop J	loop I		reference	loop I	loop J
A[i]	1	N		A[i]	N/cls ^(*)	M*N/cls
B[j,i]	м	N*M		B[j,i]	N/cls	M*N/cls

