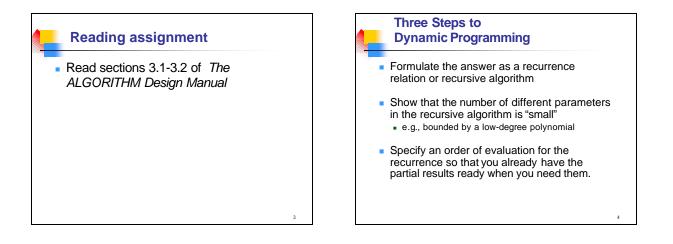
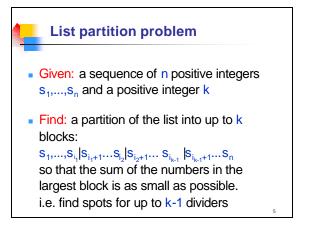
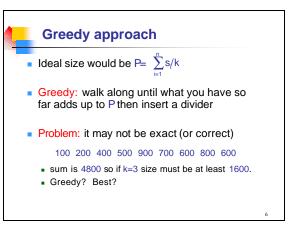


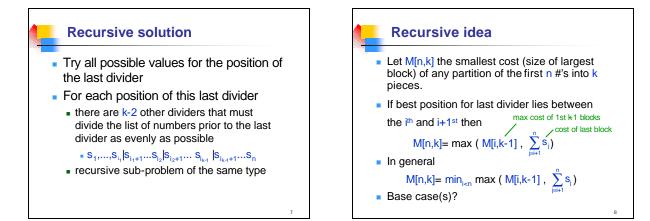
CSE 417: Algorithms and Computational Complexity Dynamic Programming, II

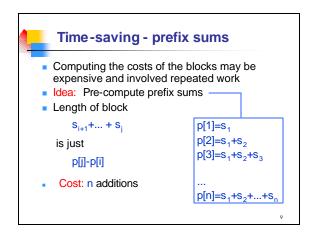
> Autumn 2002 Paul Beame



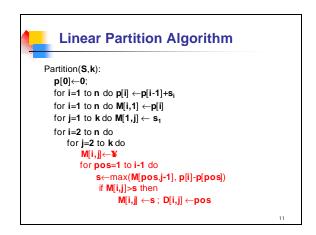


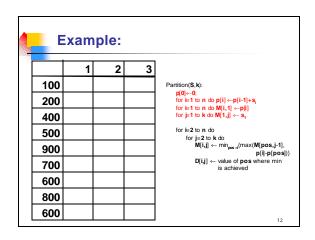






Linear Partition Algorithm	
Partition(S,k): p[0]←0; for i=1 to n do p[i] ←p[i-1]+s _i	
for i=1 to n do M[i,1] ←p[i] for j=1 to k do M[1,j] ← s ₁	
for i=2 to n do for j=2 to k do M[i,j] ← min _{pos<i< sub="">{max(M[pos,j-1], p[i]-p[pos])} D[i,j] ← value of pos where min is achieved</i<>}	
	10





	-	-	_	
	1	2	3	Destition (C b):
100	100	100	100	$\begin{array}{l} \text{Partition(S,k):} \\ p[0] \leftarrow 0; \\ \text{for} \models 1 \text{ to } n \text{ do } p[1] \leftarrow p[i-1] + s_i \\ \text{for} \models 1 \text{ to } n \text{ do } M[i,1] \leftarrow p_i \\ \text{for} \models 1 \text{ to } h \text{ do } M[i,1] \leftarrow s_i \\ \text{for} \models 2 \text{ to } h \text{ do} \\ \text{for} \models 2 \text{ to } h \text{ do} \\ M[i,j] \leftarrow \min_{\text{psec}}(\max M[\text{pos},j-1], \\ p[1] \in p[\text{pos}]) \\ D[i,j] \leftarrow \text{value of } pos \text{ where min} \\ \text{is achieved} \end{array}$
200	300			
400	700			
500	1200			
900	2100			
700	2800			
600	3400			
800	4200			
600	4800			

E	xam	ple:		
	1	2	3	
100	100	100	100	$\begin{array}{l} \mbox{Partition}(S,k):\\ p(0)\leftarrow0;\\ \mbox{for }i=t\mbox{ to n do }p[i]\leftarrow p[i-1]+s_i\\ \mbox{for }i=t\mbox{ to n do }M[i,1]\leftarrow p[i]\\ \mbox{for }j=t\mbox{ to A }M[i,1]\leftarrow s_i\\ \mbox{for }j=t\mbox{ to A }dd\\ \mbox{for }j=2\mbox{ to A }dd\\ \mbox{for }j=2\mbox{ to A }dd\\ \end{array}$
200	300	200	200	
400	700	400	400	
500	1200	700	500	
900	2100	1200	900	M[i,j] ← min _{pos<i< sub="">(max(M[pos,j-1 p[i]-p[pos</i<>}
700	2800	1600	1200	D[i,j] ← value of pos where is achieved
600	3400	2100		
800	4200	2100		
600	4800	2700		1

