



BM 210 Algoritma Analizi (Analysis of Algorithms)

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Konular

Comparison

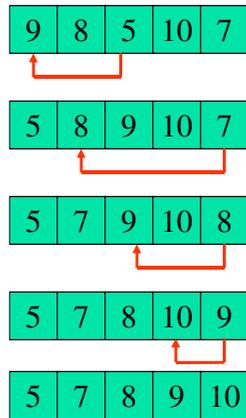
- Selection Sort
- Insertion Sort
- Bubble Sort
- Shell Sort
- Merge Sort
- Quick Sort
- Heap Sort

No comparison

- Count Sort
- Radix Sort
- Bucket Sort

Selection Sort

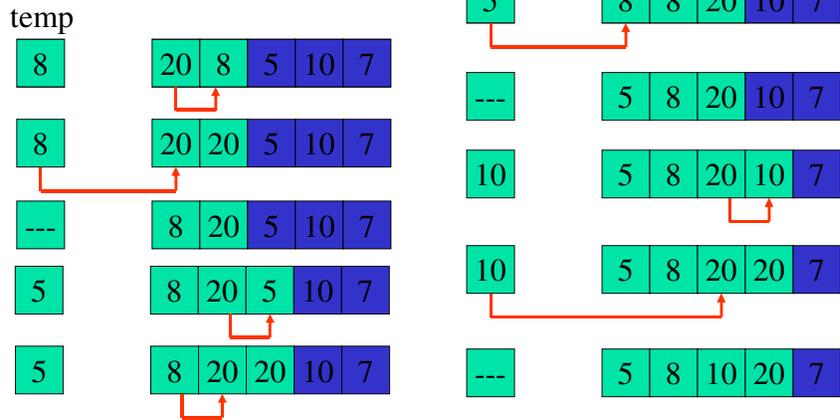
■ $O(n^2)$

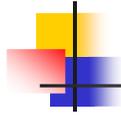


(A) S O R T I N G E X A M P L E
 A S O R T I N G E X (A) M P L E
 A A O R T I N G (E) X S M P L E
 A A E R T I N G O X S M P L (E)
 A A E E T I N (G) O X S M P L R
 A A E E G (I) N T O X S M P L R
 A A E E G I N T O X S M P (L) R
 A A E E G I L T O X S (M) P N R
 A A E E G I L M O X S T P (N) R
 A A E E G I L M N X S T P (O) R
 A A E E G I L M N O S T (P) X R
 A A E E G I L M N O P T S X (R)
 A A E E G I L M N O P R (S) X T
 A A E E G I L M N O P R S X (T)
 A A E E G I L M N O P R S T X
 A A E E G I L M N O P R S T X

Insertion Sort

■ $O(n^2)$



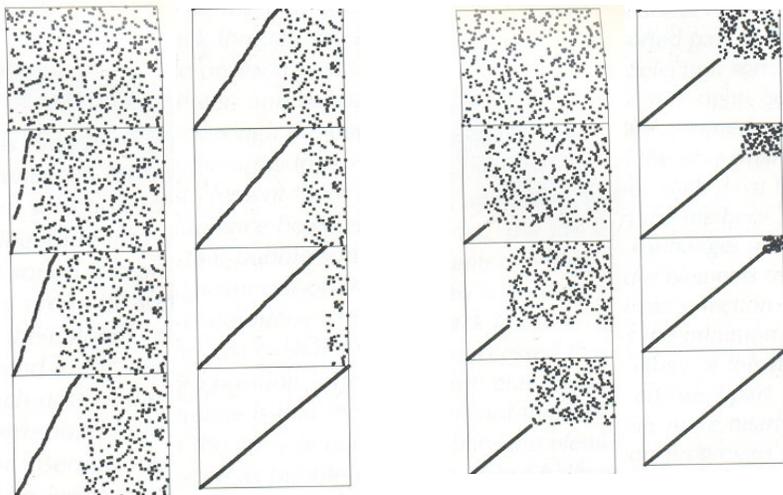


Insertion Sort

A S O R T I N G E X A M P L E
A (S) O R T I N G E X A M P L E
A (O) S R T I N G E X A M P L E
A O (R) S T I N G E X A M P L E
A O R S (T) I N G E X A M P L E
A (I) O R S T N G E X A M P L E
A I (N) O R S T G E X A M P L E
A (G) I N O R S T E X A M P L E
A (E) G I N O R S T X A M P L E
A E G I N O R S T (X) A M P L E
A (A) E G I N O R S T X M P L E
A A E G I (M) N O R S T X P L E
A A E G I M N O (P) R S T X L E
A A E G I (L) M N O P R S T X E
A A (E) E G I L M N O P R S T X
A A E E G I L M N O P R S T X



Dinamik Karakteristikler

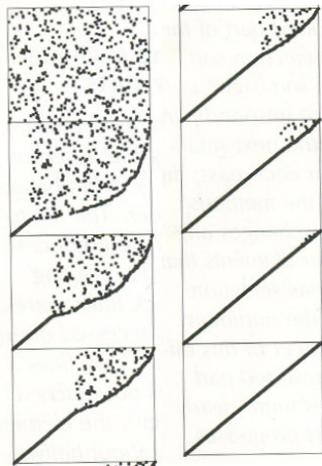


Insertion Sort

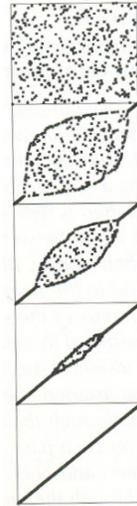
Selection Sort



Dinamik Karakteristik



Standart Bubble Sort



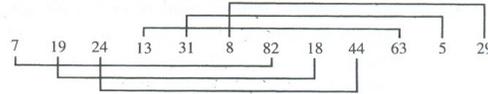
Shaker Bubble Sort



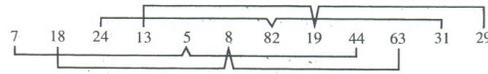
Shell Sort

■ $O(n^2)$

$h_5 = 6$



$h_4 = 4$



$h_3 = 3$



$h_2 = 2$



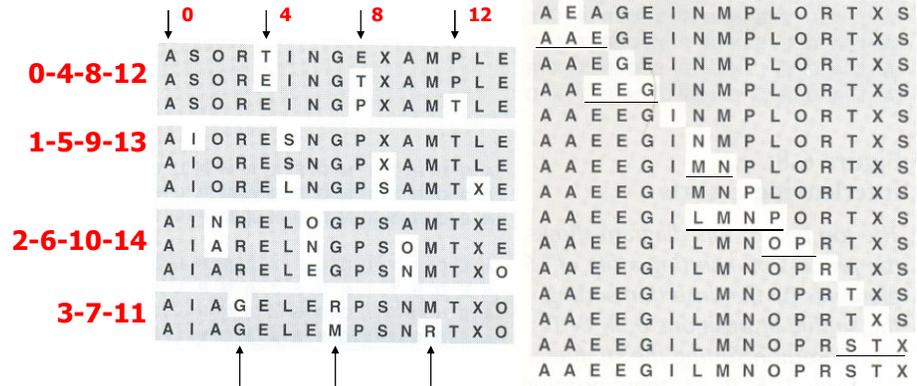
$h_1 = 1$



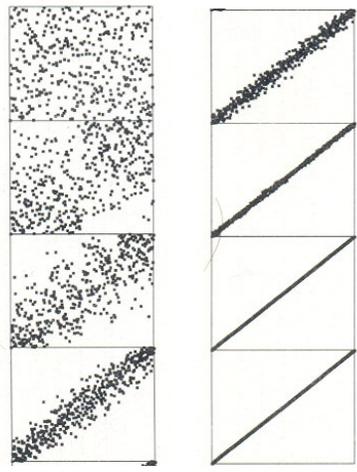
Shell Sort

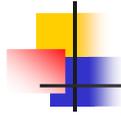
■ $O(n^2)$

Hepsi birer birer alınır

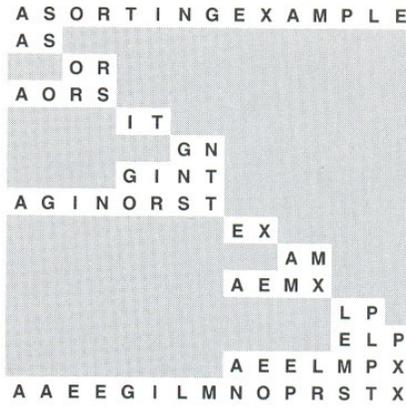


Shell Sort Dinamik Karakteristik

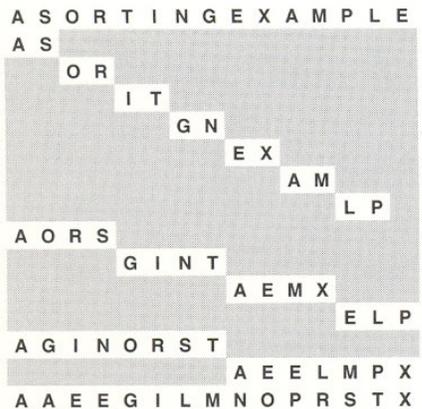




Merge Sort



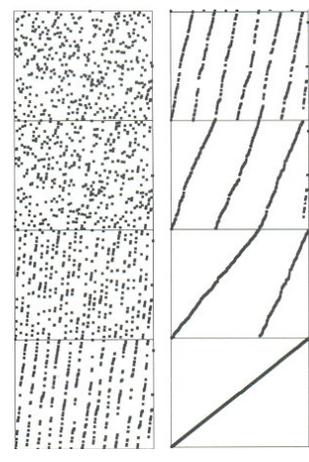
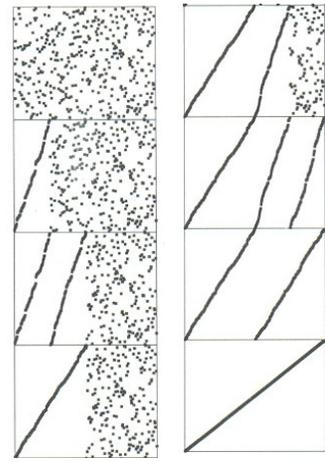
Top-down

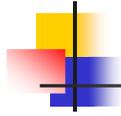


Bottom-up



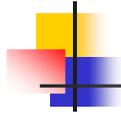
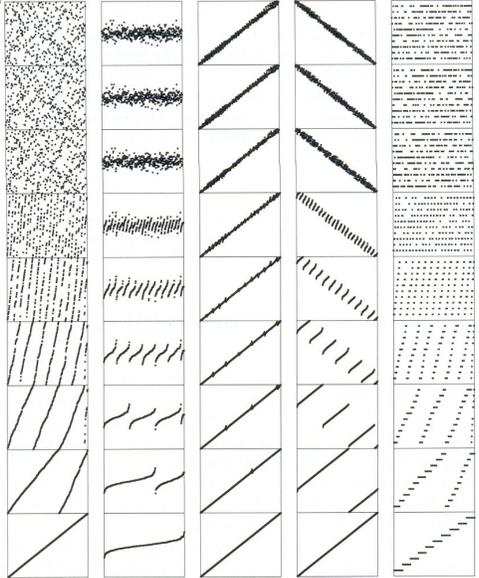
Merge Sort





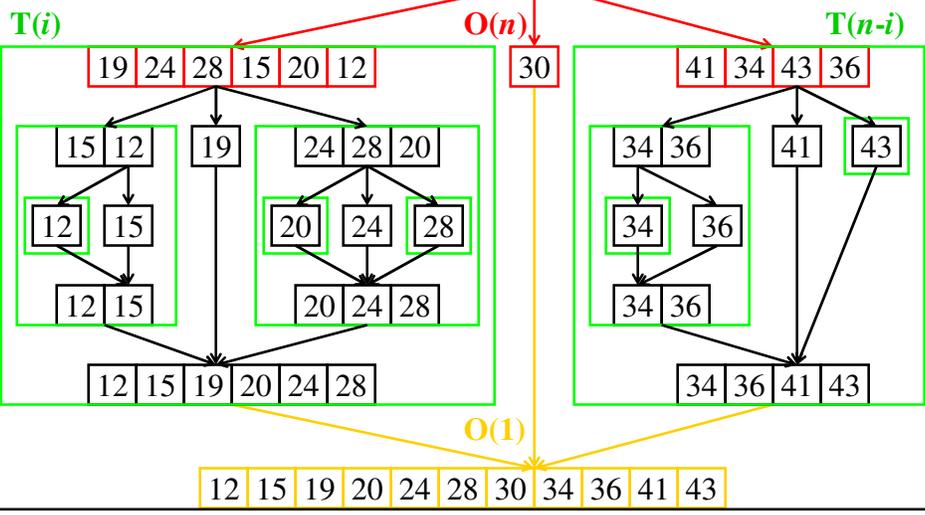
Merge Sort (Bottom-Up)

Random
Gaussian
Yaklaşık Sıralı
Ters Sıralı
10 farklı seviyeli

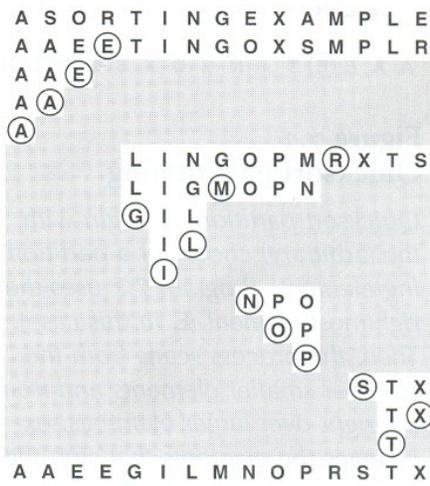


Quick Sort (nlgn)

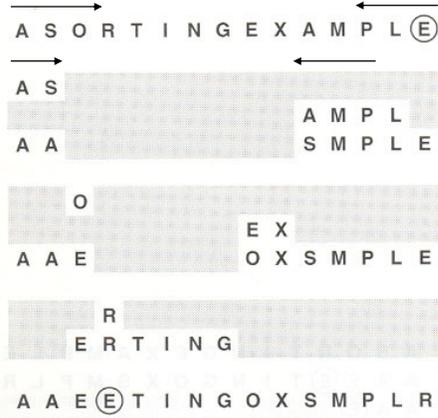
30 19 24 28 41 34 15 43 20 12 36



Quick Sort



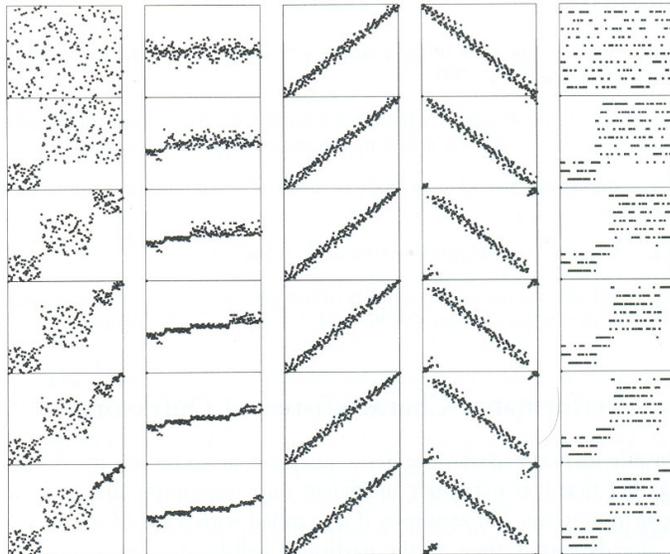
Örnek Sıralama



Partition

Quick Sort

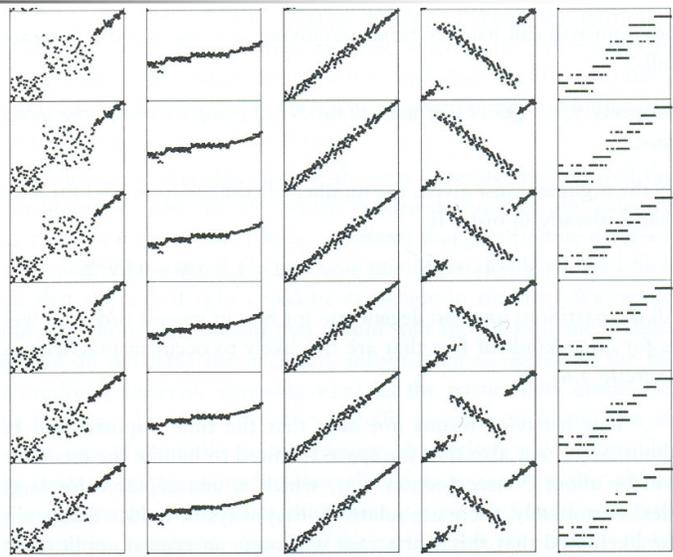
Random
Gaussian
Yaklaşık Sıralı
Ters Sıralı
10 farklı seviyeli





Quick Sort

Random
Gaussian
Yaklaşık Sıralı
Ters Sıralı
10 farklı seviyeli



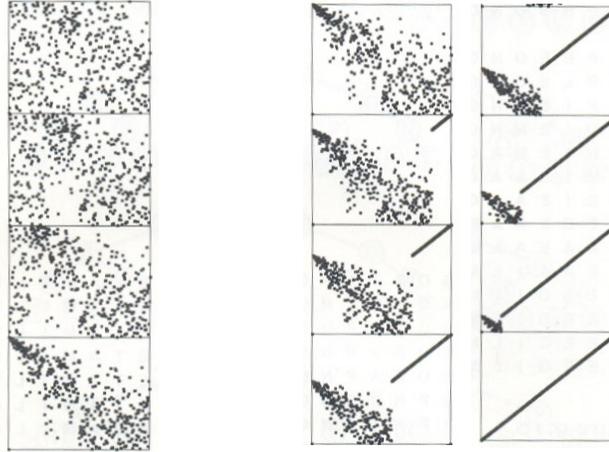
Heap Sort

A	S	O	R	T	I	N	G	E	X	A	M	P	L	E	T	S	P	R	E	O	N	G	E	A	A	M	I	L	X
A	S	O	R	T	I	N	G	E	X	A	M	P	L	E	S	R	P	L	E	O	N	G	E	A	A	M	I	T	X
A	S	O	R	T	P	N	G	E	X	A	M	I	L	E	R	L	P	I	E	O	N	G	E	A	A	M	S	T	X
A	S	O	R	X	P	N	G	E	T	A	M	I	L	E	P	L	O	I	E	M	N	G	E	A	A	R	S	T	X
A	S	O	R	X	P	N	G	E	T	A	M	I	L	E	O	L	N	I	E	M	A	G	E	A	P	R	S	T	X
A	S	P	R	X	O	N	G	E	T	A	M	I	L	E	N	L	M	I	E	A	A	G	E	O	P	R	S	T	X
A	X	P	R	T	O	N	G	E	S	A	M	I	L	E	M	L	E	I	E	A	A	G	N	O	P	R	S	T	X
X	T	P	R	S	O	N	G	E	A	A	M	I	L	E	L	I	E	G	E	A	A	M	N	O	P	R	S	T	X

Construction (Build-Heap)

I	G	E	A	E	A	L	M	N	O	P	R	S	T	X
G	E	E	A	A	I	L	M	N	O	P	R	S	T	X
E	A	E	A	G	I	L	M	N	O	P	R	S	T	X
E	A	A	E	G	I	L	M	N	O	P	R	S	T	X
A	A	E	E	G	I	L	M	N	O	P	R	S	T	X
A	A	E	E	G	I	L	M	N	O	P	R	S	T	X

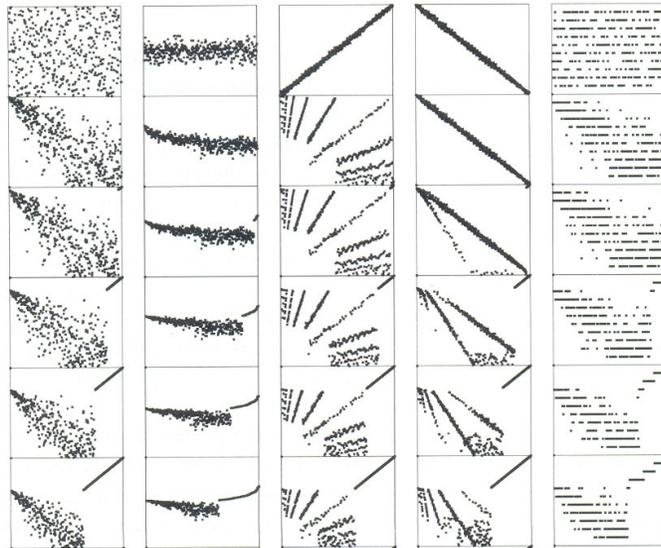
Heap Sort



Construction (Build-Heap)

Heap Sort

Random
Gaussian
Yaklaşık Sıralı
Ters Sıralı
10 farklı seviyeli



Heap Sort

Random
Gaussian
Yaklaşık Sıralı
Ters Sıralı
10 farklı seviyeli



Haftalık Ödev

- Selection sort, Insertion sort, Bubble sort, Shell sort, Merge sort, Quick sort, ve Heap sort algoritmalarının performanslarını random, gaussian, yaklaşık sıralı, ters sıralı ve 10 farklı seviyeli olarak alınan ve adedi dışarıdan girilen değerler için karşılaştıran bir program yazınız. Programda seçilen algoritmanın çalışması ve dizilerdeki değişimler grafik olarak gösterilecektir. Program C# ile yazılacak ve görsel arabirime sahip olacaktır.

Not: Ödev programın çıktısıyla birlikte diskete kaydedilerek teslim edilecektir. Ödevler en geç 12 Nisan 2005 tarihine kadar verilecektir.