Diziler

Suhap SAHIN
Onur GÖK
Fidan Kaya Gülagız

Dizi Tanımı

0 1 2 3 4

Dizi Tanımı

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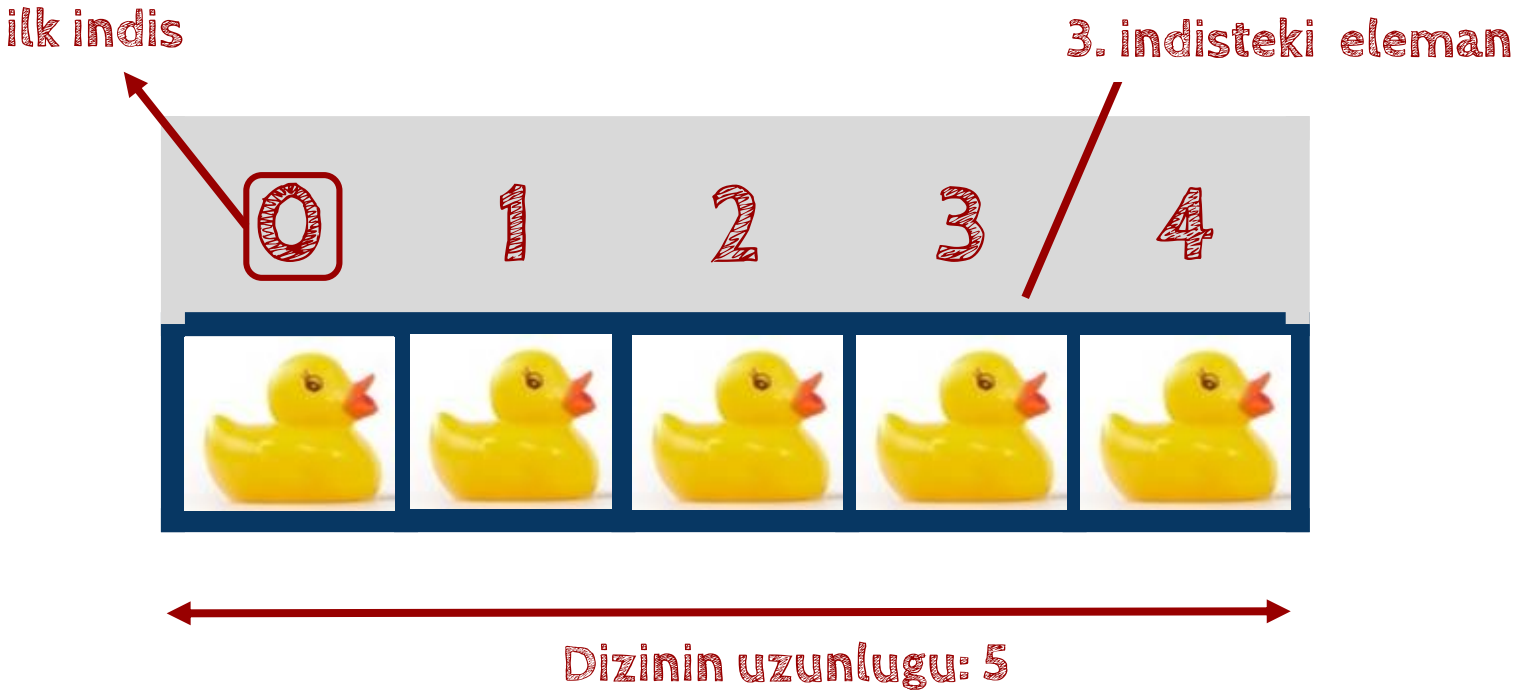
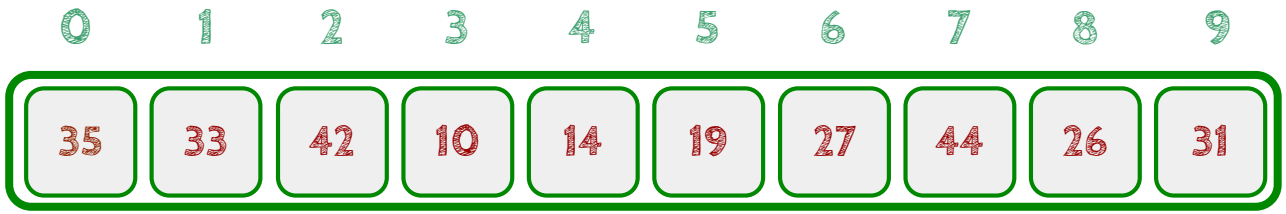
Dizi Tanımı



Dizi Gösterimi




```
int dizi[10]={35,33,42,10,14,19,27,44,26,31};
```

isim

tip

boyut

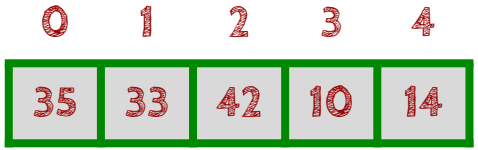
Dizi Gösterimi

```
int dizi[5]={35,33,42,10,14};
```

isim

tip

boyut



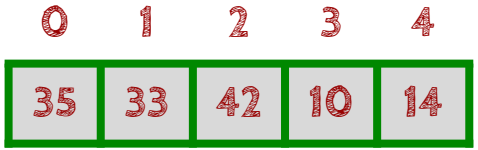
index: 0'dan baslar

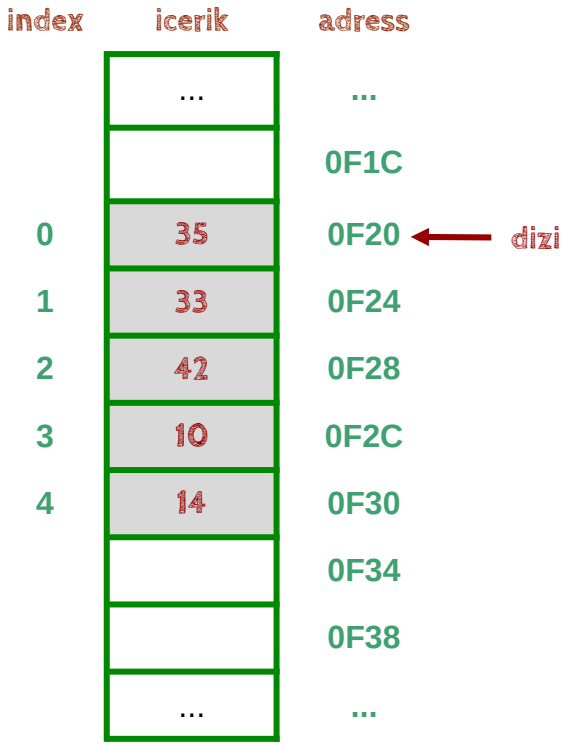
Dizinin Boyutu: Sakladıgı eleman kadardır

Erisim: Dizile elemanına erisim için index numarası kullanılır

Bellek yerlesimi

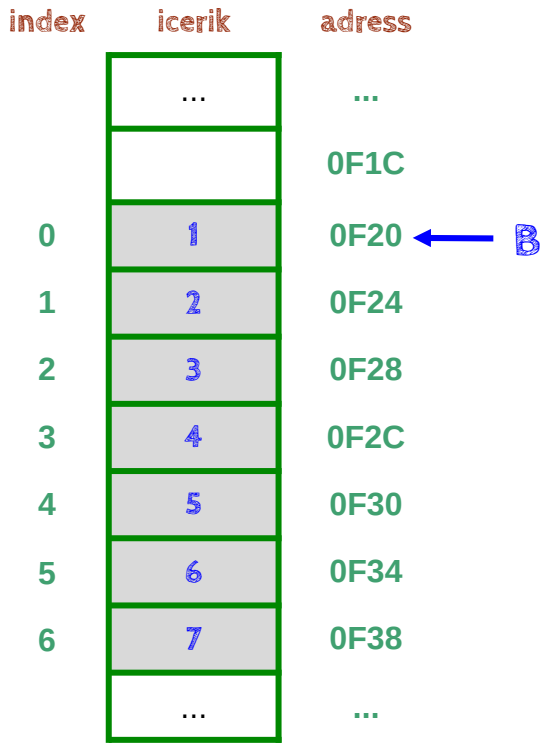
```
int dizi[5]={35,33,42,10,14};
```





Dizi Tanımlama

```c
#include <stdio.h>
void main() {
    int A[5];
    A[0] = 111;
    printf("A dizisinin 1. elemani: %d\n", A[0]);
    A[1] = 222;
    printf("A dizisinin 2. elemani: %d\n", A[1]);
    int B[7] = {1,2,3,4,5,6,7};



}
```

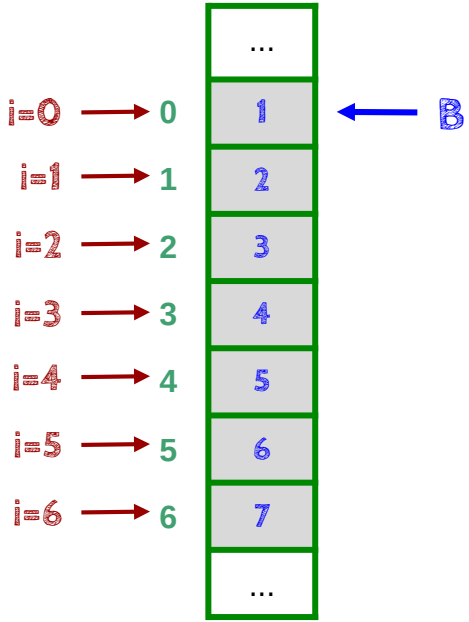


Dizi içinde dolasma

```
int B[7]={1,  2,  3,  4,  5,  6,  7 };
```

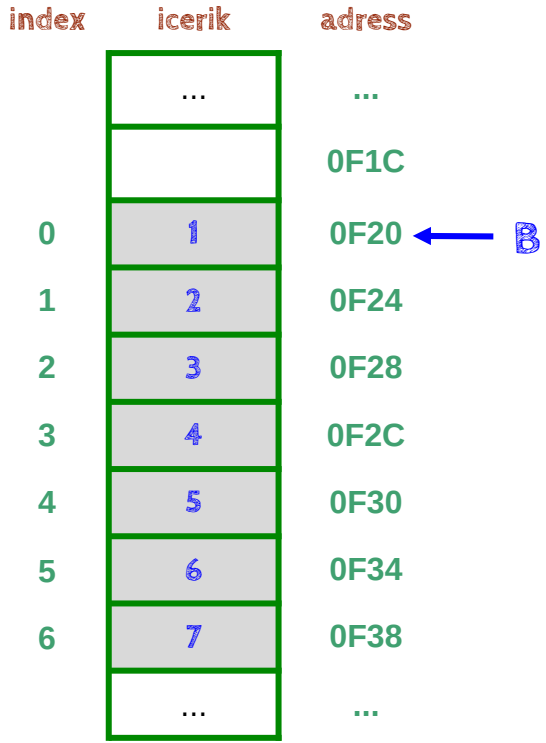
i=0 i=1 i=2 i=3 i=4 i=5 i=6

```
for (i = 0 ; i < 7 ; i++) {
                    B[i];
        }
```



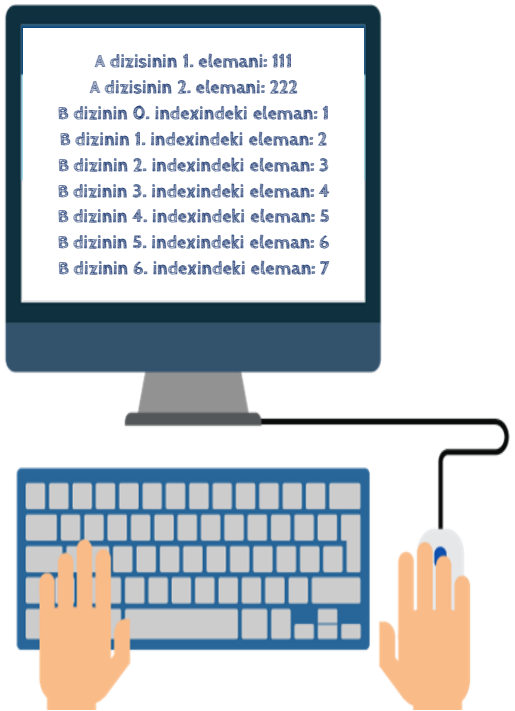
Dizi Tanımlama

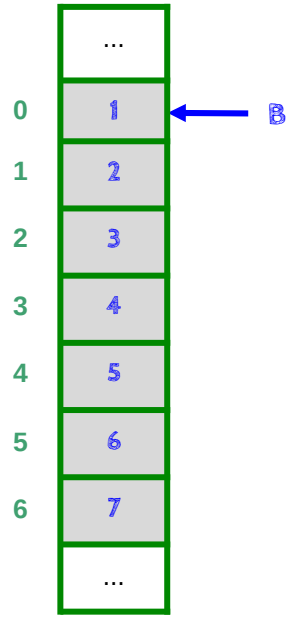
```c
#include <stdio.h>
void main() {
    int A[5];
    A[0] = 111;
    printf("A dizisinin 1. elemani: %d\n", A[0]);
    A[1] = 222;
    printf("A dizisinin 2. elemani: %d\n", A[1]);
    int B[7] = {1,2,3,4,5,6,7};
    int i;
    for (i = 0 ; i < 7 ; i++)

}
```



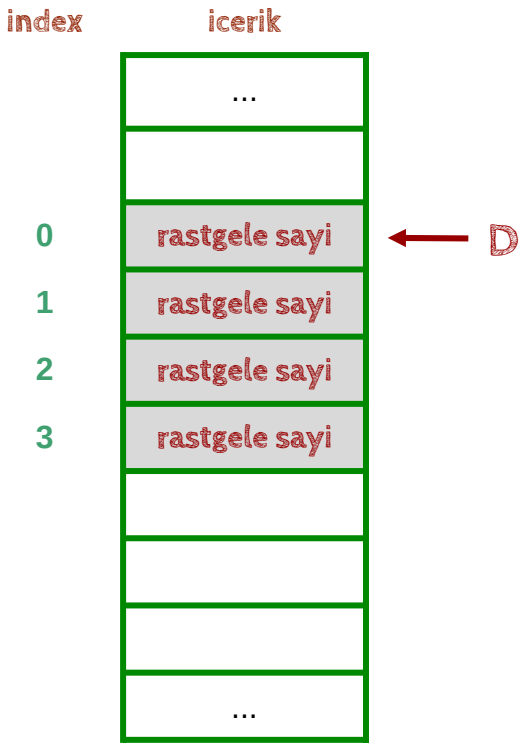
Dizi Tanımlama

```c
#include <stdio.h>
int main() {
    int A[5];
    A[0] = 111;
    printf("A dizisinin 1. elemani: %d\n", A[0]);
    A[1] = 222;
    printf("A dizisinin 2. elemani: %d\n", A[1]);
    int B[7] = {1,2,3,4,5,6,7};
    int i;
    for (i = 0 ; i < 7 ; i++)
        printf("B dizinin %d. indexindeki eleman: %d\n", i, B[i]);
}
```



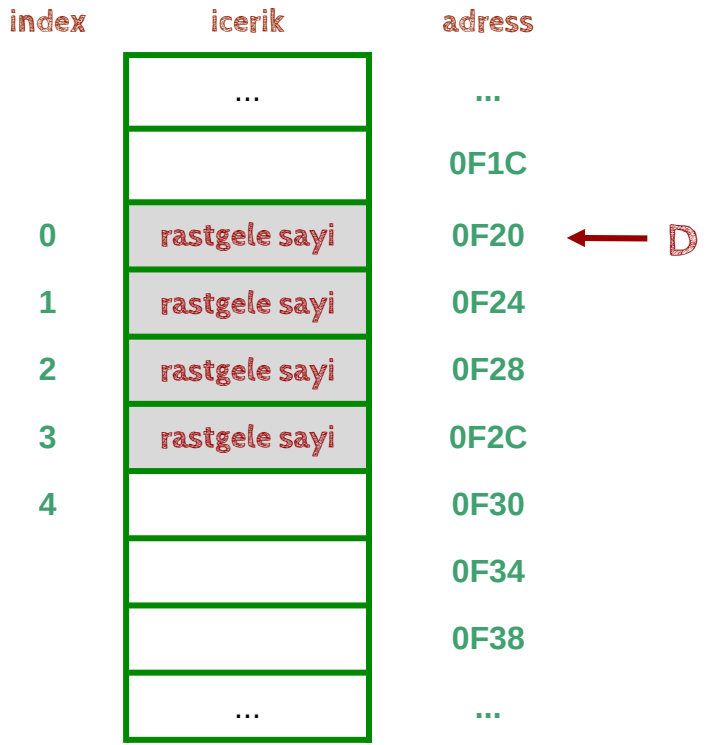


rastgele sayilar [0,100)



rastgele sayilar [0,100)

```
#include <time.h>
void main() {
        int D[4];
        srand(time(NULL));
        int i;
        printf("--- Rastgele 4 sayı üretiliyor [0,100) ----\n");
        for (i = 0 ; i < 4 ; i++) {
                D[i] = rand() % 100;
        }




}
```



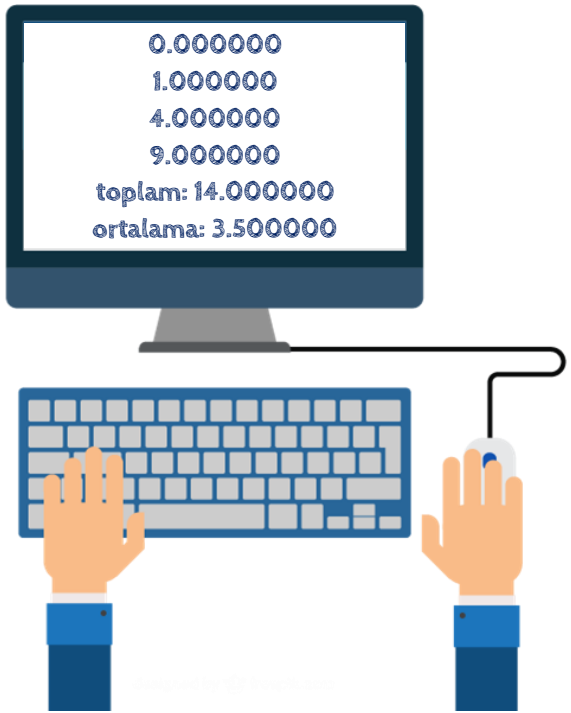
rastgele sayilar [0,100)

```c
#include <time.h>
int main() {
        int D[4];
        srand(time(NULL));
        int i;
        printf("--- Rastgele 4 sayı üretiliyor [0,100) ----\n");
        for (i = 0 ; i < 4 ; i++) {
                D[i] = rand() % 100;
        }
        printf("--- Üretilen sayılar bir dizide saklandı ----\n");
        for (i = 0 ; i < 4 ; i++) {
                printf("Üretilen  %d. sayı = %d\n",i+1,D[i]);
        }
}
```

sayıların karesi [0,4)

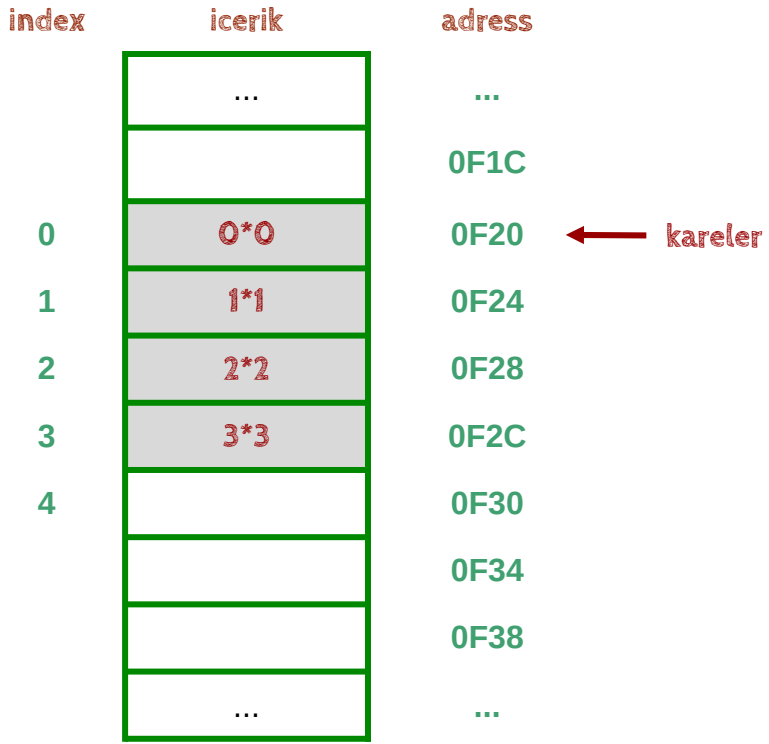
index	icerik
	...
0	0*0
1	1*1
2	2*2
3	3*3
4	
	...

kareler



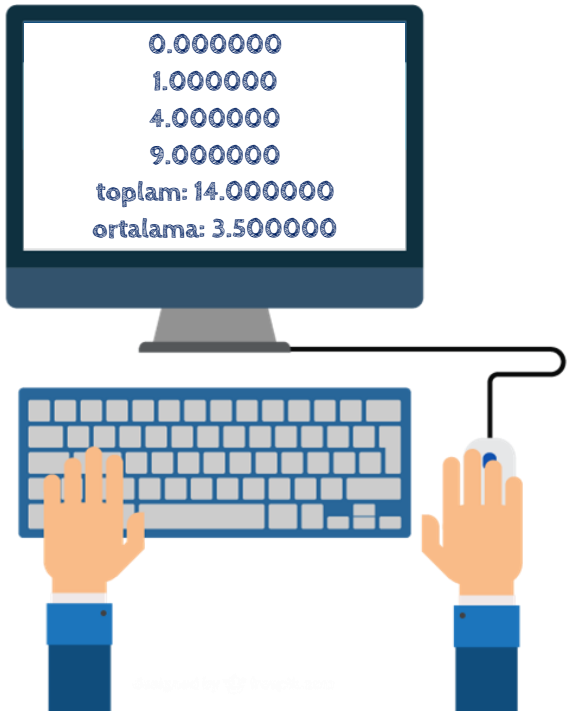
sayıların karesi [0,4)

```c
#include <stdio.h>
int main() {
        int i;
        float kareler[4];
        for (i = 0 ; i < 4 ; i++) {
                kareler[i] = i*i;
        }

}
```

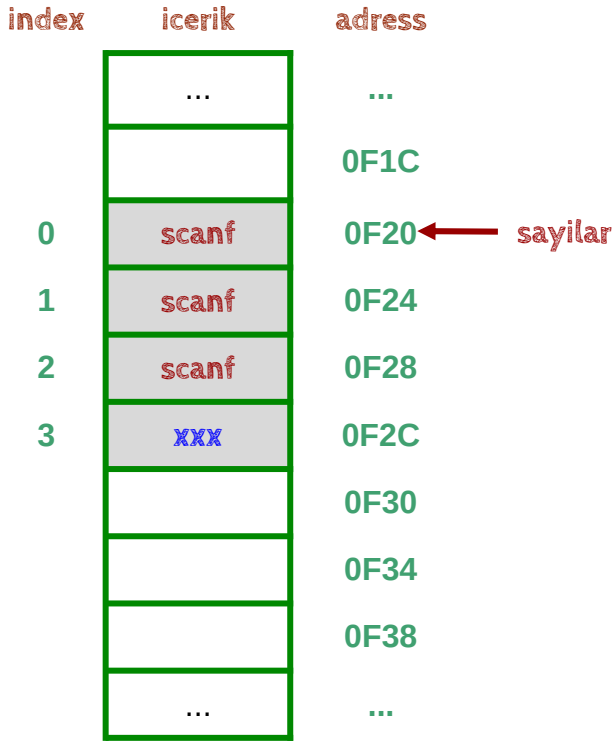


sayıların karesi [0,4)

```c
#include <stdio.h>
int main() {
        int i;
        float kareler[4];
        for (i = 0 ; i < 4 ; i++) {
                kareler[i] = i*i;
        }
        for (i = 0 ; i < 4 ; i++) {
                printf("%f\n",
kareler[i]);
        }
        float toplam = 0;
        for (i = 0 ; i < 4 ; i++)
                toplam +=
kareler[i];
        float ortalama = toplam / 4.0;
        printf("toplam: %f\n", toplam);
        printf("ortalama: %f\n",
ortalama);
}
```

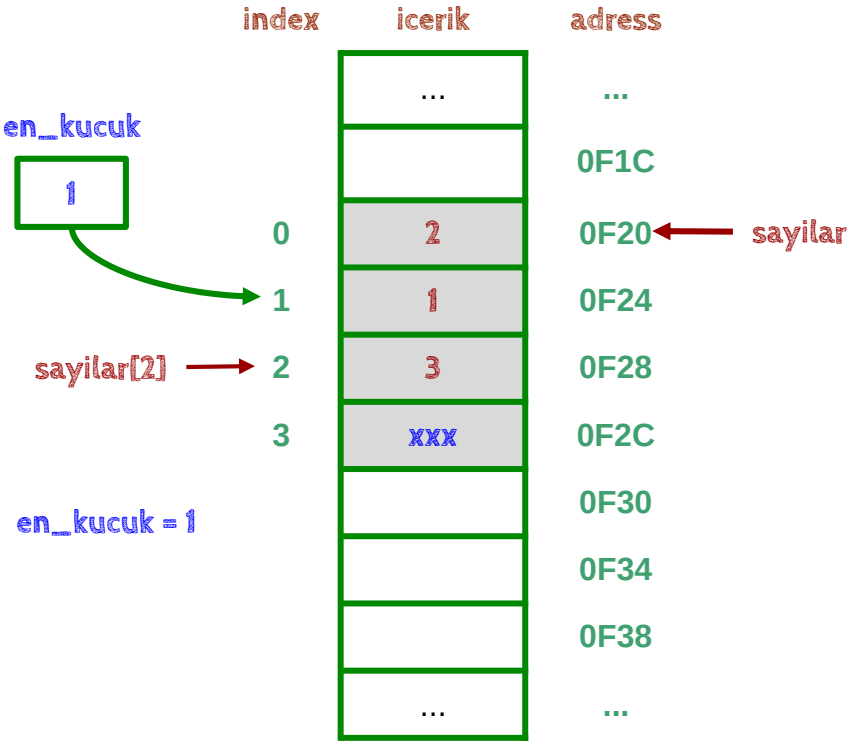


Dizideki en küçük sayı

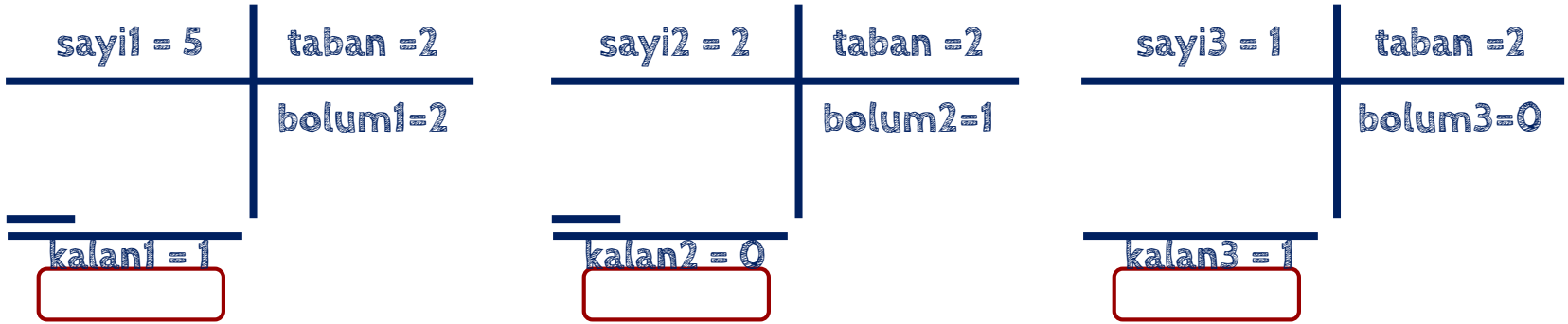


Dizideki en küçük sayı

```c
#include <stdio.h>
int main() {
        int sayilar[4];
        int i, N;
        do {
                printf("kac sayi gireceksiniz? (max:4)
");
                scanf("%d", &N);
        } while (N > 4);
        for (i = 0 ; i < N ; i++) {
                printf("sayi girin: ");
                scanf("%d", &sayilar[i]);
        }
        int en_kucuk = sayilar[0];
        for (i = 1 ; i < N ; i++) {
                if (sayilar[i] < en_kucuk) {
                        en_kucuk = sayilar[i];
                }
        }
        printf("en kucuk eleman: %d\n", en_kucuk);
}
```



Örnek: Taban çevrimi



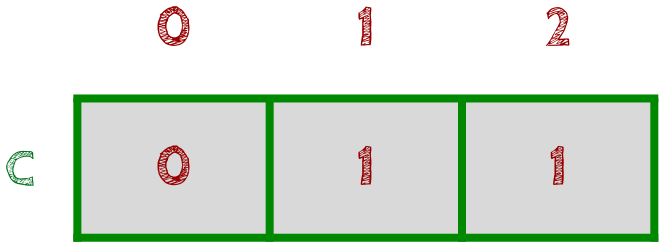
kalan1 = sayi1 % taban

sayi2 = sayi1 / taban
kalan2 = sayi2 % taban

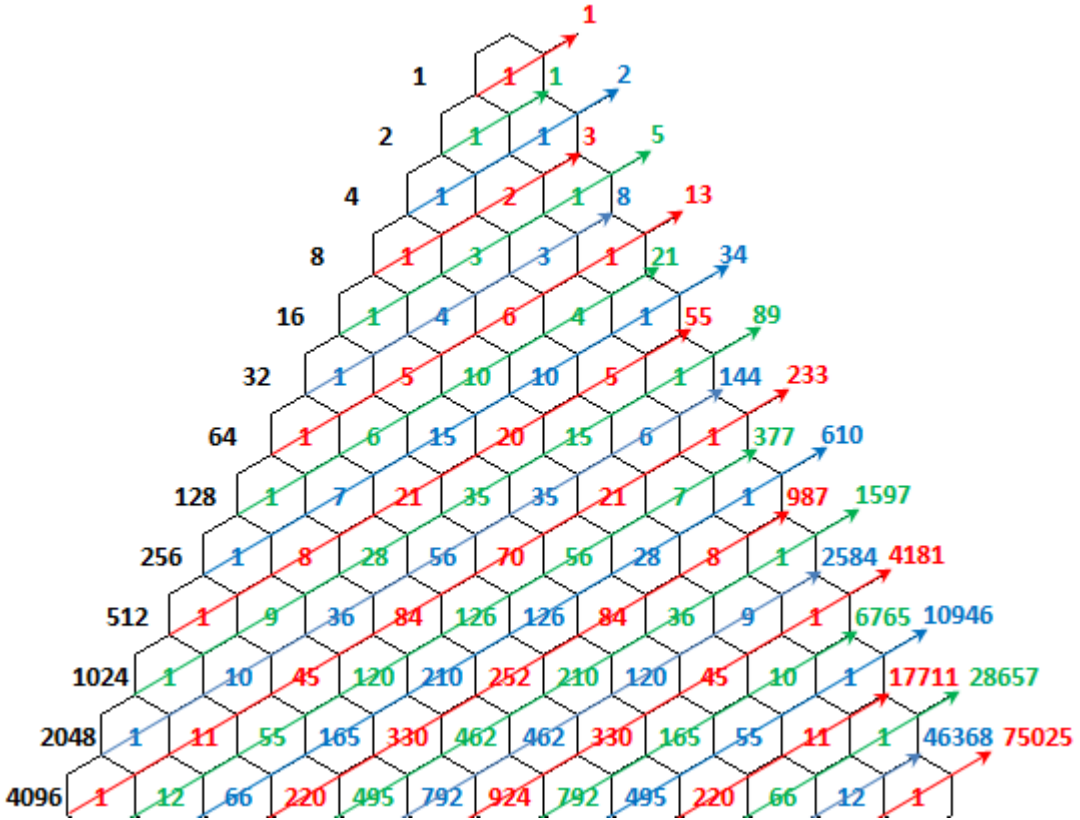
sayi3 = sayi2 / taban
kalan3 = sayi3 % taban

Örnek: Taban çevrimi

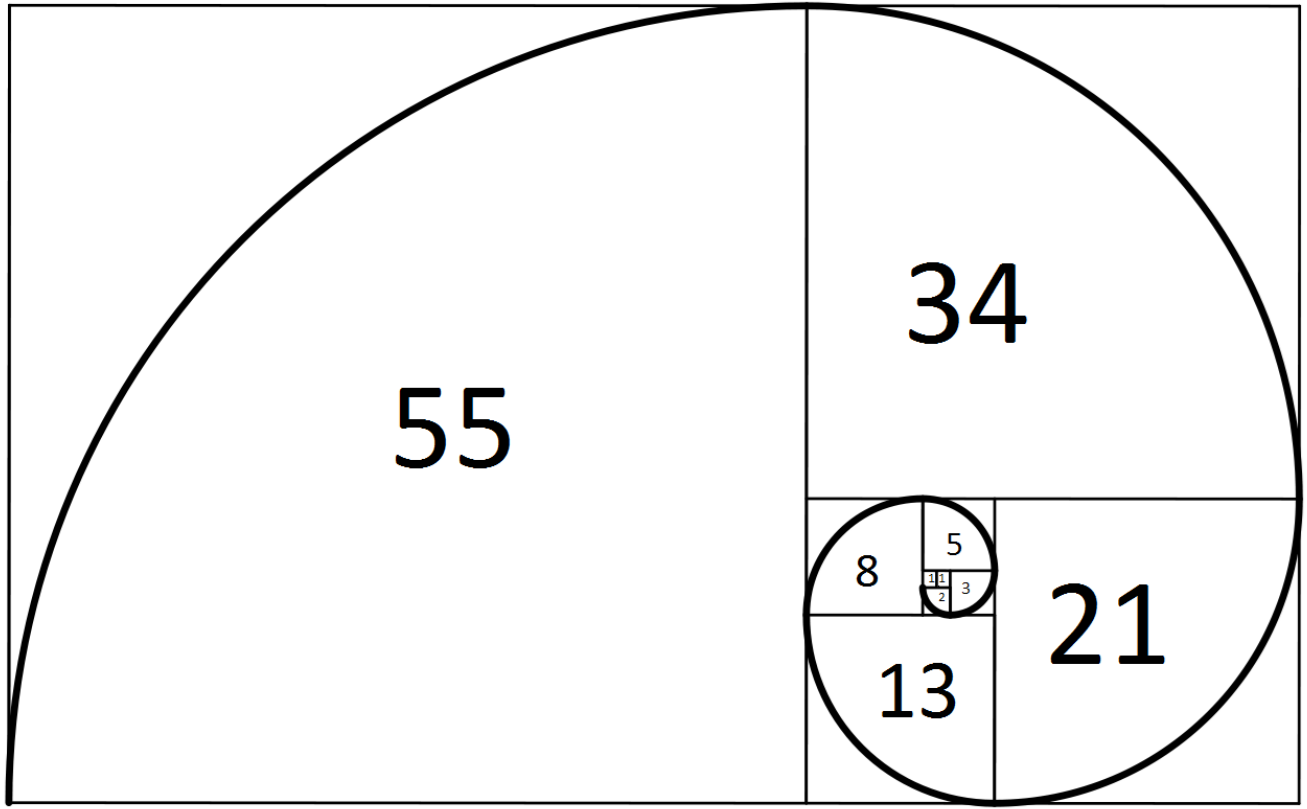
```c
#include <stdio.h>
int main()
{
    int sayi, taban, kalan;
    sayi = 6;
    taban = 2;
    int C[3];
    int i =0;
    while(sayi>0){
        kalan = sayi % taban;
        sayi = sayi / taban;
        C[i] = kalan;
        i = i+1;
    }
    for(i=2;i >-1;i--){
        printf("%d",C[i]);
    }
}
```



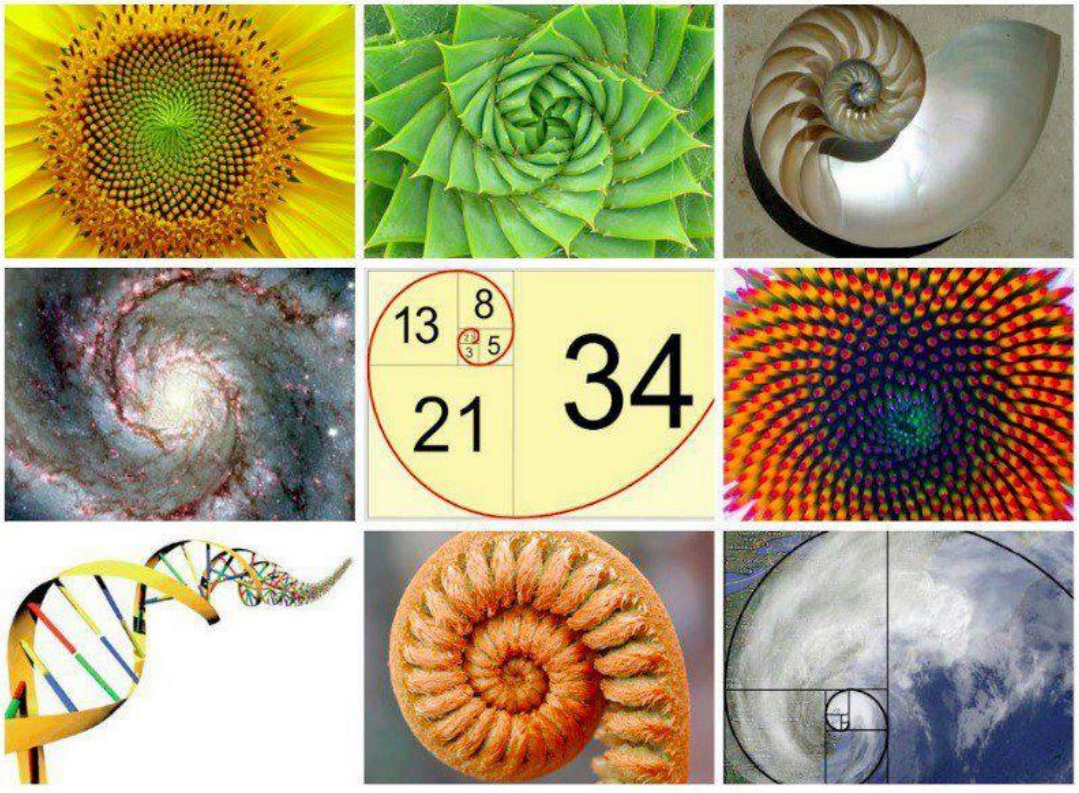
Örnek: Fibonacci Sayıları



Örnek: Fibonacci Sayıları



Örnek: Fibonacci Sayıları



Örnek: Fibonacci Sayıları

1+2=3 8+13=21

0+1=1 3+5=8

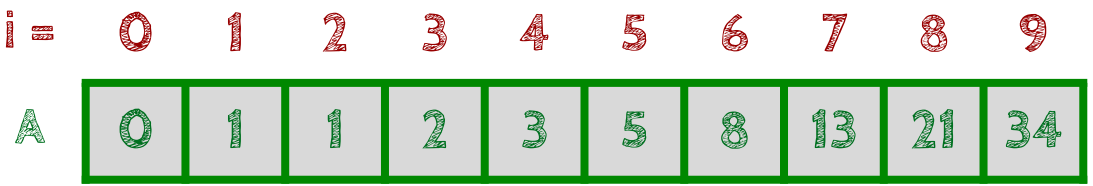
```
int A[10]={0,1,1,2,3,5,8,13,21,34};
```

1+1=2 5+8=13

2+3=5 13+21=34

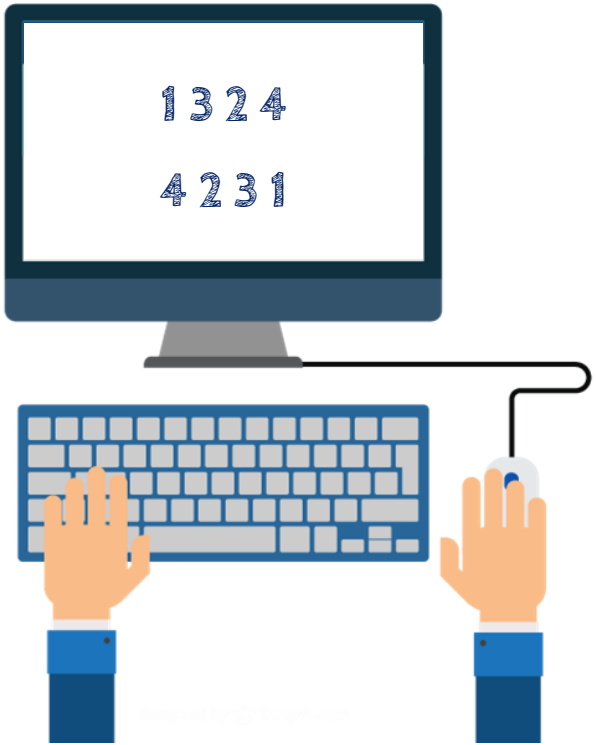
Örnek: ilk 10 fibonacci sayıları

```
#include <stdio.h>
int main()
{
    int A[10];
    A[0]=0;
    A[1]=1;
    int i;
    for(i=2;i<10;i++){
        A[i] = A[i-1]+A[i-2];
    }
    for(i=0;i <10;i++){
        printf("%d,",A[i]);
    }
}
```



A[i=2] = A[i=1] +A[i=0]

Örnek: Diziyi tersten yazdır



Örnek: Diziyi tersten yazdır

```
int A[4]={1,3,2,4};
```

```
int A[4]={1,3,2,4};
```

```
int A[4]={4,3,2,1};
```

```
int A[4]={4,2,3,1};
```

Örnek: Diziyi tersten yazdır

```c
#include <stdio.h>
int main()
{
    int N,S,gecici;
    N=4;
    int A[]={1,3,2,4};
    S=N/2;
    int i;
    for(i=0;i<S;i++){
        gecici=A[i];
        A[i]=A[N-i-1];
        A[N-i-1]=gecici;
    }
    for(i=0;i <N;i++){
        printf("%d,",A[i]);
    }
}
```

Örnek: En küçük ve en büyük

Örnek: En küçük ve en büyük

```
int A[4]={1,3,2,4};
min = A[0];          min = 1
max = A[0];          max = 1

min > A[1];          min = 1
max < A[1];          max = 3
```

Örnek: En küçük ve en büyük

```c
#include <stdio.h>
int main()
{
    int N,max,min;
    N=4;
    int A[]={1,3,2,4};
    min = A[0];
    max = A[0];
    int i;
    for(i=0;i<N;i++){
        if(A[i]>max){
            max = A[i];
        }else if(A[i]<min){
            min = A[i];
        }
    }
    printf("%d %d",min, max);
}
```

Örnek: Dizi1 + Dizi2

```
    int A[5] = {1,2,3,4,5};
+   int B[5] = {9,0,0,3,7};
-------------------------
    int C[6] = {1,0,2,3,8,2};
```

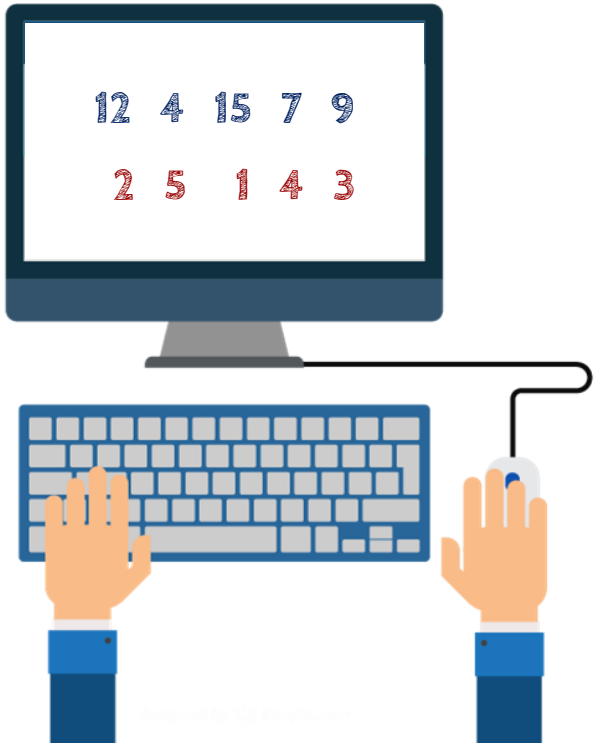
```
elde =1;      A[4] =5;
            + B[4] =7;
              ------
              C[5] =2;
```

```
C[i+1] = (A[i] + B[i] +elde) %10;
elde = (A[i] + B[i] +elde)/10;
```

Örnek: Dizi1 + Dizi2

```c
#include <stdio.h>
int main()
{
    int N,T,elde;
    N=5;
    int A[]={1,2,3,4,5};
    int B[]={9,0,0,3,7};
    int C[6];
    elde = 0;
    int i;
    for(i=N-1;i>-1;i--){
        gecici = A[i] + B[i] +elde;
        C[i+1] = gecici %10;
        elde = gecici/10;
    }
    C[0]=elde;
    for(i=0;i<N+1;i++){
        printf("%d",C[i]);
    }
}
```

Örnek: Büyüklük sırası



Örnek: Büyüklük sırası

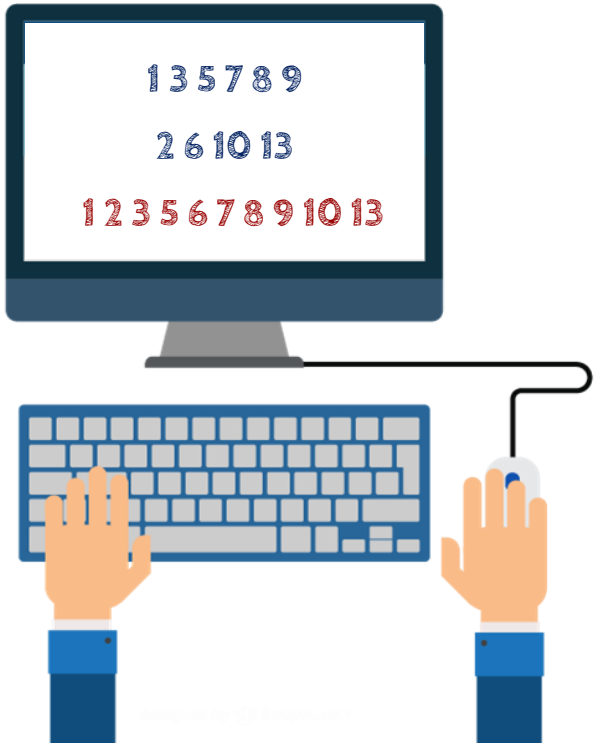
int A[5]={12,4,15,7,9};	int Y[5]={1,1,1,1,1};
i j int A[4]={12,4,15,7,9};	int Y[5]={1,2,1,1,1};
i j int A[4]={12,4,15,7,9};	int Y[5]={2,2,1,1,1};
i j int A[4]={12,4,15,7,9};	int Y[5]={2,2,1,2,1};
i j int A[4]={12,4,15,7,9};	int Y[5]={2,2,1,2,2};

Örnek: Büyüklük sırası

	i	j			
	12	4	15	7	9
	2	5	1	4	3

```
#include <stdio.h>
void main()
{
    int N=5,T,elde,i,j;
    int A[]={12,4,15,7,9};
    int Y[5];
    for(i=N-1;i>-1;i--)          Y[i] = 1;
    for(i=0;i<N;i++){
        for(j=i+1;j<N;j++){
            if(A[j]<A[i]){
                Y[j]++;
            }else{
                Y[i]++;
            }
        }
    }
    for(i=0;i<N;i++)             printf("%3d",A[i]);
    printf("\n");
    for(i=0;i<N;i++)             printf("%3d",Y[i]);
}
```

Örnek: sıralı dizileri birleştirme



Örnek: sıralı dizileri birleştirme

```c
#include <stdio.h>
void main()
{
   int N=6,M=4,ia=0,ib=0,ic=0,i;
   int A[] = {1,3,5,7,8,9};
   int B[] = {2,6,10,13};
   int C[10];
   while(ia<N && ib<M){
    if(A[ia]>B[ib]){
        C[ic] = B[ib];
        ib++; ic++;
    }else{
        C[ic] = A[ia];
        ia++; ic++;
    }
   }
   while(ib<M){
    C[ic] = B[ib];
        ib++; ic++;
   }
   while(ia<N){
    C[ic] = A[ia];
        ia++; ic++;
   }
   for(i=0;i<N+M;i++){
    printf("%d ",C[i]);
   }
}
```

Sorular