11. Bölüm

Başlangıç Örnekleri 2

```
*******************************
52 lik kağıt destesini karıştıram program

# include <stdio.h>
# include <math.h>
# include <stdlib.h>
# include <time.h>

int dizi[53];
int sayi_cek()
{
int k,num;
k=((rand()+.0)/32767)*4+1;
num=((rand()+.0)/32767)*13+1;
return k*100+num;
}
void kar(void)
{
int i,j,sayi;
for (i=1;i<=52;i++)
{
sayi=sayi_cek();
for (j=1;j<i;j++)
   if (sayi==dizi[j])
   {
   j=i;
   i=i-1;
   }
if (j<i+2)
{
   dizi[i]=sayi;
}

}
}
main()
{
int i,s,t,x,y;
randomize();
clrscr();
```

```
kar();
x=5;
y=4;
for(i=1;i<=52;i++)
{
s=dizi[i];
t=s/100;
x=x+1;
if (x>18)
{
   x=6;
   y=y+20;
}
gotoxy(y,x);
switch(t)
{
   case 1:printf("%d=> Maca ",i);break;
   case 2:printf("%d=> Sinek ",i);break;
   case 3:printf("%d=> Kupa ",i);break;
   case 4:printf("%d=> Karo ",i);break;
}
if (s-t*100==1)
   printf("As "); else printf("%d ",s-t*100);
}
getch();
}



**********************************
******* grafik ekran kullanımı**********
**********************************
# include <stdio.h>
# include <stdlib.h>
# include <math.h>
# include <graphics.h>
main()
{
int x,y,i;
int graphdriver=DETECT,graphmode;
initgraph(&graphdriver,&graphmode,"");
setbkcolor(0);
setcolor(4);
settextstyle (GOTHIC_FONT,HORIZ_DIR,9);
outtextxy(70,100,"sim□lasyon");
```

```
setcolor(11);
setlinestyle(0,0,5);
x=getmaxx();
y=getmaxy();
rectangle(0,0,x,y);
getch();
cleardevice();
setcolor(5);
settextstyle(DEFAULT_FONT,HORIZ_DIR,6);
outtextxy(200,25,"ANAMENš");
line(0,100,700,100);
settextstyle(SMALL_FONT,HORIZ_DIR,6);
outtextxy(150,150,"[1]-DAGILIMLARDAN SAYI URETME");
outtextxy(150,175,"[2]-DAGILIMLARIN GRAFIGI");
outtextxy(150,200,"[3]-DAGILIMLARIN TABLOSU");
outtextxy(150,225,"[4]-VERI GIRISI");
outtextxy(150,250,"[5]-CIKIS");
gotoxy(10,25);printf("SECIMINIZ ? ");
getch();
closegraph();
}


**************************************************
******* rasgele hareket eden parçacığın simülasyonu*********
**************************************************
# include <graphics.h>
# include <math.h>
# include <stdio.h>
# include <stdlib.h>
main ()
{
char ch;
double l,x2,y2,x1,y1,alfa;
int x,y,i,r1,r2;
int graphdriver=DETECT,graphmode;
initgraph(&graphdriver,&graphmode,"");
x1=50.0;
y1=50.0;
setbkcolor(0);
setcolor(7);
settextstyle (GOTHIC_FONT,HORIZ_DIR,9);
outtextxy(70,100,"sim□lasyon");
getch();
```

```
cleardevice();
setlinestyle(0,0,5);
x=getmaxx();
y=getmaxy();
rectangle(0,0,x,y);
i=1;
while (i<3000)
   {
   r1=rand();
   alfa=r1/32767.0*6.48;
   r2=rand();
   l=r2/32767.0*10.0;
   y2=l*sin(alfa)+y1;
   x2=l*cos(alfa)+x1;
  line(x1+50,y1+50,x2+50,y2+50);
  x1=x2;y1=y2;
  i++;
}
  getch();
  closegraph();
  }



*****************************************************
/* Monte-Carlo intagrasyon yontemi ile f(x)=(1-x^2)^.5 */
/* fonksiyonunun (0,1) araliginda yaklasik integralini bulur */
*****************************************************
# include <stdio.h>
# include <math.h>
main ()
{
int i,k;
double z,alan,x,y;
  clrscr();
  i=0;
  k=0;
  for (i=1;i<=500;i++)
  {
  x=rand()/32767.0;
  y=rand()/32767.0;
  z=2.0;

/*          z=sqrt(1.0-x*x);*/
```

```
   if ( y <= z )
            k++;

/*          gotoxy(10,14);printf("N= %d",i);
    gotoxy(10,12);printf("k= %d",k);*/
    alan=(k*1.0)/(i*1.0);
    gotoxy(10,16);printf("alan= %2.9f",alan);
   }
   gotoxy(10,24);printf("cikis icin herhengi bir tusa basiniz");
   getch();
}


/********************** */
/*dusen bir topun gozlenmesi*/
/********************** */
# include <graphics.h>
# include <stdio.h>
# include <math.h>
main ()
{
double a,b,k,y1,li;
float pi =3.14159654;
int x,y,yuks ,iii, ex , ey ,ii,j, i,m,n;
void gotoxy(int a, int b);
int graphdriver=DETECT,graphmode;
initgraph(&graphdriver,&graphmode,"");
line (0,295,510,295);
iii=0;
x=0;
y=0;
yuks=250;
a=pi/70.0;
b=90*pi/180.0;
k=.0014;
for (i=1;i<200;i++)
    {
    /*cleardevice();*/
line (0,295,510,295);
    iii=iii+3;
    y1=yuks*sin(a*iii+b)*exp(-k*iii);
    y1=300-abs(y1)-10;
    circle(x,y,5);
    circle(iii+20,y1,10);
```

```
   x=iii+20;
   y=y1;
}
getch();cleardevice();
}


*******************************************
********* normal dağılım için sayısal integral hesabı
*******************************************
# include <stdio.h>
# include <math.h>
main ()
{
int n1;
double sonuc,a1,b1;
double fonk();
double integral();
clrscr();
a1=0.0;
b1=1.0;
n1=500;
gotoxy(10,24);printf(".....lütfen bekleyiniz.........");
sonuc=integral(a1,b1,n1);
gotoxy(10,10);printf("sonu‡ = %4.9f \n",sonuc);
getch();
}
double integral(double a,double b, int n)
{
  double x1,h,integ,integ1,integ2;
  int i;
  h=(b-a)/n*1.0;
  integ1=0.0;
  integ2=0.0;
  integ=0.0;
for (i=1;i<=n;i=i+2)
   {
   x1=a+i*h*1.0;
   integ1=integ1+4.0*fonk(x1);
   integ2=integ2+2.0*fonk(x1);
   integ=integ1+integ2+fonk(a)+fonk(b);
   integ=integ*h/3.0;
   }
   return(integ);
```

```
}
double fonk(double x)
   {
   double y;
   y=0.39904*exp(-0.5*pow(x,2.0));
   return(y);
   }


**********************************************************
******** kolmogorov smirnov uyum-iyiliği testi üstel dağılım*******
**********************************************************
# include <stdio.h>
# include <stdlib.h>
# include <math.h>
# include <conio.h>
# define BOYUT 200
main()
{
double ustel();
double uretme();
void swap (double *, double *);
double dizi[BOYUT];
double dizi1[BOYUT];
double dizid[BOYUT];
double dizif[BOYUT];
double ddeger[BOYUT];
double levo;
int n,teta,i;
n=5;
teta=9;
clrscr();
{ for(i=1;i<=n;i++)
   { dizi[i]=0.0;
   dizi1[i]=0.0;
   dizid[i]=0.0;
   dizif[i]=0.0; }}
ddeger[4]=.565;
ddeger[5]=.509;
ddeger[6]=.468;
ddeger[7]=.436;
ddeger[8]=.410;
ddeger[9]=.387;
ddeger[10]=.369;
```

```
ddeger[11]=.352;
ddeger[12]=.338;
ddeger[13]=.325;
ddeger[14]=.314;
ddeger[15]=.304;
ddeger[16]=.295;
ddeger[17]=.286;
ddeger[18]=.279;
ddeger[19]=.271;
ddeger[20]=.265;
ddeger[21]=.259;
ddeger[22]=.253;
ddeger[23]=.247;
ddeger[24]=.242;
ddeger[25]=.238;
ddeger[26]=.233;
ddeger[27]=.229;
ddeger[28]=.225;
ddeger[29]=.221;
ddeger[30]=.218;
ddeger[31]=.214;
ddeger[32]=.211;
ddeger[33]=.208;
ddeger[34]=.205;
ddeger[35]=.202;
ddeger[36]=.199;
ddeger[37]=.196;
ddeger[38]=.194;
ddeger[39]=.191;
ddeger[40]=.189;

clrscr();
uretme(dizi,n,teta);
sirala(dizi,n);

yaz(dizi,n);

for(i=1;i<=n;i++)
   { dizi1[i]=(i*1.0)/n*1.0; }

for(i=1;i<=n;i++)
   { levo=dizi[i];
   dizif[i]=ustel(teta,levo);}
```

```
for(i=1;i<=n;i++)
   { dizid[i]=dizif[i]-dizi1[i];
   if (dizid[i]< 0.0)
            dizid[i]=-1.0*dizid[i]; }

sirala(dizid,n);
getch();
clrscr();

gotoxy(2,10);printf("hesaplanan d değeri= %f",dizid[n]);
if (n>40)
ddeger[n]=1.22/sqrt(n);
gotoxy(2,12);printf("tablo d değeri= %f",ddeger[n]);

{ if (dizid[n]>ddeger[n])
{ gotoxy(2, 15);printf("H0 red edilecek.....>");}
else
   { gotoxy(2, 17);printf("******** H0 kabul edilecek.....>");}
   }
getch();
exit(0);
}
double uretme(sayi,n1,teta1)
double sayi[];
int n1, teta1;
{
   int i;
   double x;
   for(i=1;i<=n1;i++)
    { x=rand();
    x=x/32767.0;
    x=-1.0*teta1*log(x);
    sayi[i]=x; } }

void swap (double *a, double *b)
{ double temp;
temp = *a;
*a= *b;
*b=temp; }

sirala (sayi2,n2)
double sayi2[];
int n2;
{
```

```
int j,k;
double l1,l2;
for (j=1;j<=n2-1;j++)
    { for(k=j+1;k<=n2;k++)
    { if(sayi2[j]>sayi2[k])
                { l1=sayi2[j];
                l2=sayi2[k];
                swap (&l1,&l2);
                sayi2[j]=l1;
                sayi2[k]=l2;
                        }}}}

yaz (sayi3,n3)
double sayi3[];
int n3;
{ int i;
   for(i=1;i<=n3;i++)
    { printf("%f\n",sayi3[i]);} }

double ustel(teta3,x)
int teta3;
double x;
{ double f0;
f0=1.0-exp((-x*1.0)/(1.0*teta3));
return(f0); }
```