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‘ Matris toplamını bulan program/fonksiyon

```
Sub Command1_Click()
Dim A(3, 3)
Dim B(3, 3)
      For i = 1 To 3
          For j = 1 To 3
              A(i, j) = i + j
          Next j
      Next i
      For i = 1 To 3
          For j = 1 To 3
              B(i, j) = i * j
          Next j
      Next i
      MatrisToplam A, B
End Sub

Sub MatrisToplam(X(), Y())
Dim Z(3, 3)
      For i = 1 To UBound(X)
          For j = 1 To UBound(X)
              Z(i, j) = X(i, j) + Y(i, j)
          Next j
      Next i

      Open "C:\Matrisler.txt" For Append As #1
      For i = 1 To 3
          For j = 1 To 3
              Print #1, Z(i, j),
          Next j
          Print #1,
      Next i
      Close #1
End Sub
```

‘Birim Matris Oluşturma

```
Sub Command1_Click()
      Dim A(3, 3)
      BirimMatris A, 3
End Sub
Sub BirimMatris(X(), N As Byte)
      For i = 1 To N
          For j = 1 To N
              If i = j Then X(i, j) = 1 Else X(i, j) = 0
          Next j
      Next i

      Open "C:\Matrisler.txt" For Append As #1
      For i = 1 To 3
          For j = 1 To 3
              Print #1, X(i, j),
          Next j
          Print #1,
      Next i
      Close #1
End Sub
```

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```
'Matrisin izini bulan bir fonksiyon
Function Matris_izi(X()) As Long
      Toplam = 0
      For i = 1 To 3
          For j = 1 To 3
              If i = j Then Toplam = Toplam + X(i,
      j)
          Next j
      Next i
      Matris_izi = Toplam
End Function
```

```
'Matrisin simetrik olup olmadığını kontrol eden bir fonksiyon
Function Simetrik_mi(X()) As Boolean
      For i = 1 To UBound(X)
          For j = 1 To UBound(X)
              If X(i,j)<> X(i,j) Then
                  MsgBox "Simetrik Değil"
                  Simetrik_mi=False
                  Exit Function
          Next j
      Next i
      MsgBox "Simetrik"
      Simetrik_mi=True
End Function
```

```
'İki matris çarpımını bulan fonksiyon
Sub MatrisCarpimi(X(), Y())
Dim Z(3, 3)
      For i = 1 To UBound(X)
          For j = 1 To UBound(X)
          Z(i,j)=0
             For k=1 to UBound(X)
                  Z(i, j) = Z(i, j)+X(i, k) + Y(k, j)
             Next k
          Next j
      Next i

      Open "C:\Matrisler.txt" For Append As #1
      For i = 1 To 3
          For j = 1 To 3
              Print #1, Z(i, j),
          Next j
          Print #1,
      Next i
      Close #1
End Sub
```

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```
'NxN boyutlu bir matrisin determinantını bulan fonksiyon
Sub Determinant(X(), N As Byte)
ReDim Z(N, N)
Det = 1
For k = 1 To N - 2
Det = Det / (X(1, 1) ^ (N - k - 1))
    For i = 1 To N - k
        For j = 1 To N - k
            Z(i, j) = X(1, 1) * X(i + 1, j + 1) - X(1, j + 1) * X(i + 1, 1)
        Next j
    Next i
    For i = 1 To N - k
        For j = 1 To N - k
            Z(i, j) = X(i, j)
        Next j
    Next i
Next k
Det = Det * (X(1, 1) * X(2, 2) - X(1, 2) - X(2, 1))
MsgBox Det
End Sub
```

```
'MxN boyutlu bir matrisin satır toplamlarını bulan fonksiyon
Sub SatirTopla(X(), M As Byte, N As Byte)
ReDim Satir(M)
    For i = 1 To M
    Satir(i)=0
        For j = 1 To N
            Satir(i)=Satir(i)+X(i,j)
        Next j
    Next i
End Sub
```

```
'MxN boyutlu bir matrisin elemanlarının toplamlarını bulan fonksiyon
Sub ElemanTopla(X(), M As Byte, N As Byte)
Toplam=0
    For i = 1 To M
        For j = 1 To N
            Toplam=Toplam+X(i,j)
        Next j
    Next i
End Sub
```

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```
'MxN boyutlu bir matrisin enbüyük ve enküçük elemanlarını bulan fonksiyon
Sub ElemanTopla(X(), M As Byte, N As Byte)
EnKucuk=X(1,1)
EnBuyuk=X(1,1)
    For i = 1 To M
        For j = 1 To N
            If X(i,j)>EnBuyuk Then EnBuyuk=X(i,j)
            If X(i,j)<EnKucuk Then EnKucuk=X(i,j)
        Next j
    Next i
MsgBox "En Büyük Eleman= " & EnBuyuk
MsgBox "En Küçük Eleman= " & EnKucuk
End Sub
```

```
'MxN boyutlu bir matrisin transpozunu bulan fonksiyon
Sub Transpoze(X(), M As Byte, N As Byte)
Redim Transpoze(M,N)
    For i = 1 To M
        For j = 1 To N
            Transpoze(i,j)=X(j,i)
        Next j
    Next i
End Sub
```

```
'NxN boyutlu bir matrisin tersini bulan fonksiyon
Sub Command1_Click()
Dim A(3, 3)
Dim N As Byte
N = 3
    For i = 1 To N
        For j = 1 To N
            If i = j Then A(i, j) = 1 Else A(i, j) =
0
        Next j
    Next i
MatrisTersi A, N
End Sub
```

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```
Sub MatrisTersi(X(), N As Byte)
ReDim Ters(N, N)
For k = 1 To N
    For i = 1 To N
        For j = 1 To N
            If i <> k Or j <> k Then GoTo Git1
            X(i, j) = X(i, j) - X(i, k) * X(k, j) / X(k, k)
        Next j
    Next i

X(k, k) = -1 / X(k, k)
     For i = 1 To N
         If i <> k Then X(i, k) = X(i, k) * X(k, k)
     Next i
     For j = 1 To N
         If j <> k Then X(k, j) = X(k, j) * X(k, k)
     Next j
Next k
    Open "C:\MatrisTers.txt" For Output As #1
    For i = 1 To N
        For j = 1 To N
            Ters(i, j) = -X(i, j)
            Print #1, Ters(i, j),
        Next j
        Print #1,
    Next i
End Sub
```