Aurkitu 5 akatsak ondoko Mathematikako sarreretan:

$B=\begin{pmatrix}3&0&0\\0&1&1\\0&1&1\end{pmatrix}$ matrizea ortogolaki diagonalizatu:

In[1]:=
```
B = {{3, 0, 0}, {0, 1, 1}, {0, 1, 1}}
```
Out[1]=
```
{{3, 0, 0}, {0, 1, 1}, {0, 1, 1}}
```

In[5]:=
```
pol = Det[B - x * IdentityMatrix[3]]
```
determinante | matriz identidad

$$(3-x)\left(-2x+x^2\right)$$

In[6]:=
```
CharacteristicPolynomial[B, x]
```
polinomio característico

Out[6]=
$$-6x+5x^2-x^3$$

In[7]:=
```
s = Eigensystem[B]
```
autovalores y autove

Out[7]=
```
{{3, 2, 0}, {{1, 0, 0}, {0, 1, 1}, {0, -1, 1}}}
```

In[14]:=
```
von = Orthogonalize[s[[2]]];
```
ortogonaliza
```
p = Transpose[von];
```
transposición
```
MatrixForm[p]
```
forma de matriz

Out[16]//MatrixForm=
$$\begin{pmatrix}1&0&0\\0&\frac{1}{\sqrt{2}}&-\frac{1}{\sqrt{2}}\\0&\frac{1}{\sqrt{2}}&\frac{1}{\sqrt{2}}\end{pmatrix}$$

In[17]:=
```
d = Transpose[p].B.p
```
transposición

Out[17]=
```
{{3, 0, 0}, {0, 2, 0}, {0, 0, 0}}
```