**Description**

diagonal(A) extracts the diagonal of A and returns it in a column vector.

**Syntax**

```
numeric colvector diagonal(numeric matrix A)
```

**Remarks and examples**

diagonal() may be used with nonsquare matrices.

Do not confuse diagonal() with its functional inverse, diag(); see [M-5] diag(). diagonal() extracts the diagonal of a matrix into a vector; diag() creates a diagonal matrix from a vector.

**Conformability**

diagonal(A):

\[
\begin{align*}
A & : \quad r \times c \\
result & : \quad \min(r, c) \times 1
\end{align*}
\]

**Diagnostics**

None.

**Also see**

[M-5] blockdiag() — Block-diagonal matrix

[M-5] diag() — Create diagonal matrix

[M-5] isdiagonal() — Whether matrix is diagonal