At any stage you need matrices to perform operations with them. Tasks1-3 do that job. Enter them anyway you want. Choose any default matrix you want for a requested matrix type. Allow matrix edit as long as the matrix types of a matrix doesn't change.

Let's say you have following matrices in your sytem using Tasks 1-3

```
a=[1,2;3,4]
```

```
a =
     1     2
     3     4
```

```
b=[5,6,7;8,9,10]
```

```
b =
     5     6     7
     8     9    10
```

```
c=[2,4,3]
```

```
c =
     2     4     3
```

```
d=[5]
```

```
d = 5
```

```
e=[5,6;7,8]
```

```
e =
     5     6
     7     8
```

```
f=[1;5]
```

```
f =
     1
     5
```

```
g=[7]
```

```
g = 7
```

Task 4:

What are the matrix-types of c?

```
'Row Matrix'
'Rectangular Matrix'
```

Task 5:

Need to perform addition. Choose two matrices from a-g.

Input: a,e

```
a+e
```

```
ans =
      6     8
     10    12
```

Task 6:

Need to perform element-wise multiplication. Choose two matrices from a-g.

Input: a,e

```
a.*e
```

```
ans =
      5    12
     21    32
```

Task 7:

Need to transpose a matrox. Choose one matrox from a-g

Input: a

```
a'
```

```
ans =
      1     3
      2     4
```

Task 8:

Need to inverse a matrox. Choose one matrox from a-g

Input: a

```
inv(a)
```

```
ans =
   -2.0000    1.0000
    1.5000   -0.5000
```

Task 9:

Compute row-wise mean of a matrox. Choose one matrox from a-g.

Input: a

```
mean(a,1)
```

```
ans =
      2      3
```

Task 10:

Compute determinant of a matrix. Choose one matrox from a-g

Input: a

```
det(a)
```

```
ans = -2
```

Task 11:

Use singleton matrix in matrix operations. Do you allow using singleton matrices as a scalar value?

Input: yes

Then choose a matrix from a-g

Input: b

Choose a singleton matrix now.

Input: d

```
d*b
```

```
ans =
     25     30     35
     40     45     50
```

Task 12:

Compute A+A' of a matrox. Choose one matrox from a-g. Note that it must be a square matrix.

Input: a

```
a+a'
```

```
ans =
      2      5
      5      8
```

Task 13:

Compute eigen values of a matrix.

Choose a square matrox from a-g.

```
eig(a)
```

```
ans =
   -0.3723
    5.3723
```

Task 14:

Solve a set of linear equation.

Choose a square matrix from a-g.

Input: a

Choose a column matrix from a-g. Note: this should have same number of rows as the one you entered just now

Input: f

```
inv(a)*f
```

```
ans =
    3.0000
   -1.0000
```

Task 15:

Rerieve all square matrices from a-g.

```
a
```

```
a =
     1     2
     3     4
```

```
e
```

```
e =
     5     6
     7     8
```