Solving Linear Algebra problem using SciPy

DESCRIPTION

**Problem:**

Use SciPy to solve a linear algebra problem.

There is a test with 30 questions worth 150 marks. The test has two types of questions:

1. True or false – carries 4 marks each

2. Multiple-choice – carries 9 marks each

Find the number of true or false and multiple-choice questions.

**Assessment**:

Let us consider,

X – no. of True or false questions

Y – no. of Multiple choice questions

Therefore,

X+Y = 30 ---🡪1st eqn

Also,

Equating for the total marks: 150

4X+9Y = 150 ----🡪2nd eqn

From 1st eqn Y=30-X

Substituting Y=30/X in 2nd eqn, we get

4X+(9\*(30-X))=150

4X-9X+270=150

-5X=-120

X=24

Substituting X=24 in 1st eqn, we get

24+Y=30

Y=6

Therfore the value of X and Y is:

X=24, Y=6

**Coding:**

**1.Importing Required Libraries**

#importing numpy and linalg from Scipy

>> import numpy as np

>> from scipy import linalg

**2. Formulate two linear equations based on the given scenario**

#x = True or false questions

#y = Multiple-choice questions

#total no. of questions: x+y=30

#total marks 4x+9y=150

>>Variables=np.array([[1,1],[4,9]])

>>Values=np.array([30,150])

#### 3. Apply a suitable method to solve the linear equation

No\_of\_TF\_ques, No\_of\_MC\_Ques = linalg.solve(Variables,Values)

print('no.of True or False Questions: {}\nno.of Multiple Choice Questions: {}'.format(No\_of\_TF\_ques, No\_of\_MC\_Ques))

**OUTPUT:**

**no.of True or False Questions: 24.0**

**no.of Multiple Choice Questions: 6.0**