Australian College of Business
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Programming

CSP1150D

Pseudocode

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Function Main:

Do while loop:

Get square list values from *function* GetUserInput.

Display Square

If *function* CheckMagicSquare returns positive: Print'Is Magic Square'

Else: Print'Is not Magic Square'

If *function* CheckLoShuMagicSquare and *function* RepeatTest and *function* RangeTest all return positive: Print'Is Lo Shu Square'

Else: Print'Is not Lo Shu Square'

Print 'Do you want to enter a new square? (Y/N)'
Input 'Y' or 'N'

End while loop

Function GetUserInput:

AnyRowOrColumn = 3
NumOfRows = 3
NumOfCol = 3
Count = 0

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UserSquare  =  [[0, 0, 0],
                [0, 0, 0],
                [0, 0, 0]]
```

For loop:

Loop through each element in the list and input new value for UserSquare.

End Loop

Print UserSquare

Return UserSquare

Function GetFirstRowSum:

Get UserSquare values from *functions* GetUserInput

FirstRowSum set to 0

For loop:
    Loop through each element of list in the first row of the square.

    Add each element value to the FirstRowSum (total).
End Loop

Return FirstRowSum

Function CheckEqualRowSums:

Get values from *functions* GetUserInput and GetFirstRowSum

RowSum set to 0

For loop:
    Loop through each element of list in the other rows of the square.

    Add each element value to the RowSum (total).
End Loop

If RowSum != FirstRowSum:

    Return False

Else:
    Return True

Function CheckEqualColumnSums:

Get values from *functions* GetUserInput and FirstRowSum

ColSum set to 0

For loop:
Loop through each element of list in the columns of the square.

Add each element value to the ColSum (total).
End Loop

If Colsum != FirstRowSum:

Return False

Else:
Return True

Function CheckEqualRowAndColumnSums:

Get values from *functions* GetUserInput, FirstRowSum

If *function* CheckEqualRowSums and *function* CheckEqualColumnSums both return true then:

Return True

Else:
Return False

Function CheckEqualDiagonalSums:

Get values from *functions* GetUserInput and GetFirstRowSum

DiagonalSums = 0

For loop:
Loop through each element of list in the diagonals of the square.

Add each element value to the DiagonalSums (total).
End Loop

If DiagonalSums != FirstRowSum:

Return False

Else:
Return True

Function CheckMagicSquare:

Get values from *functions* GetUserInput and GetFirstRowSum

If *function* CheckEqualRowAndColumnSums and *function* CheckEqualDiagonalSums return True:

Return True
Else:
Return False

Function CheckLoShuMagicSquare:

Get values from *functions* GetUserInput and GetFirstRowSum

If *function* CheckEqualRowAndColumnSums and *function* CheckEqualDiagonalSums return True:

Return True
Else:
Return False