```
import numpy as np
import matplotlib.pyplot as plt
import math as math
import csv
from copy import deepcopy
import csv


A = np.zeros([38,38])
RHS = np.zeros([38,1])
U = np.zeros([38,1])

##############################################################################
# open file
with open('amtrx.dat') as file:

# loop over each line in file
    for i,line in enumerate(file.readlines()):

    # create a list of strings splitted by whitespace
        numbers = line.split()

            # loop over potential numbers
        for j,number in enumerate(numbers):
                number = float(number)
                A[i,j] = number

##############################################################################
# open file
with open('rhs.dat') as file_1:

# loop over each line in file
    for i,line in enumerate(file_1.readlines()):

    # create a list of strings splitted by whitespace
        number = line.split()
        number = float(number[0])
        RHS[i,0] = number


##############################################################################
# open file
with open('U.dat') as file_2:

# loop over each line in file
    for i,line in enumerate(file_2.readlines()):

    # create a list of strings splitted by whitespace
        number = line.split()
        number = float(number[0])
        U[i,0] = number

##############################################################################
K_inv = np.linalg.inv(A)
Residual = np.dot(A,U) - RHS
print(np.dot(A,U))
```