

# Outline

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## **Abstract**

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# 1 Introduction

The rationale behind analyzing this dataset is to determine if there are any trends between characteristics of patients with differing levels of heart disease. Knowing these trends will perhaps enable us to better understand and treat those affected and make predictions on the direction their health may be heading.

\*include papers about heart disease?\*

# 2 Methods

```
# MAIN FUNCTION
op = '' # defining variable op
clmns = [] # defining list clmns
filename = '' # defining variable filename
def shellfunction(filename, clmns, op): # defining function with 3 inputs
    import pandas as pd # importing pandas
    import seaborn as sns # importing seaborn for plotting
    import re # importing regex
    print('Input .csv file you wish to analyze')
    filename = str(input()) # allows user to input filename
    assert check(filename) == True, 'This function will only work with .csv files\nPlease_L'
    print('\n') # the assert statement will ensure we are working with a .csv file
    cl = [] # making an empty list
    clmns = cl # making the empty list equal to clmns
    print('age=_0, _sex=_1\nchest_pain=_2, _resting_blood_pressure=_3\ncholesterol=_4, _'
    print('\n') # providing a key
    for i in range(0, 2): # making a for loop where the user can input what elements they
        print("Enter number corresponding to desired element to be plotted")
        item = int(input())
        cl.append(item) # appending user input to the empty list made earlier
    x, y = cl # setting up assert statement
    assert x != y, 'Please input different values' # using assert statement to ensure differ
    print('\n')
    df = pd.read_csv(filename, usecols = clmns) # importing file and designating columns to
    op = str(input("What operation would you like to run on this data?:\nAverage(A), _Maximu
    print('\n') # providing instructions for the user
    if op == "A" or op == "a": # set up if, elif, else statements to take on use inputs
        avg = df.mean(axis=0) # average function
        v1, v2 = df
        sns.lmplot(v1, v2, data=df, fit_reg=True) #plotting using seaborn
        print(avg)
    elif op == "MX" or op == "mx":
        mx = df.max(axis=0) # max function
        v1, v2 = df
        sns.lmplot(v1, v2, data=df, fit_reg=True)
        print(mx)
    elif op == "MN" or op == "mn":
        mn = df.min(axis=0) # min function
        v1, v2 = df
        sns.lmplot(v1, v2, data=df, fit_reg=True)
        print(mn)
    elif op == "STD" or op == "std":
        stdev = df.std(axis=0) # standard deviation function
```

```

    v1, v2 = df
    sns.lmplot(v1, v2, data=df, fit_reg=True)
    print(stdev)
else:
    print("Invalid Input")

```

*# SUB FUNCTION*

```

def check(file): # defining function check
    import re # importing regex
    csv = re.compile(r'.*\.csv') # will search for input ending in .csv
    file = csv.search(file) # returns first match
    return bool(file) # if the input ends in .csv, this function will return True

```

### 3 Results

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### 4 Discussion

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