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SURVEY OF TENSION CARRIED OUT DURING WORKING HOURS USING LINEAR REGRESSION

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ABSTRACT: In this paper, we are going to collect the parameters such as body temperature, glucose level, pedometer, blood pressure, respiration rate, heartbeat count and body mass index from the working person by using the smart watch and questionnaire process. The collected data is then an advantageous line that decreases the variation between the forecast data and the real values of the relative variable.whether the particular person was in a relaxed, brisk or drowsy state of a tension level during their working hours.

KEY WORDS: Parameter, Tension, Working person, Health, Smart wearable, prediction

INTRODUCTION

On this day, expeditious and demanding work strive, job holders often encounter various stages of pressure and strain throughout their hours of work. This pressure can have suggestive inference for their welfare, performance in their job, and complete organizational fruitfulness. Acknowledging and successfully managing this pressure is climacteric for maintaining a well and high yielding workforce

Fig 1.1-Pressure carried out during working hours

Conventional approaches to appraise tension in the factory have depended on spill the beans about methods such as study and questionnaires. While these approaches can provide beneficial insights, they are objective and limited by partiality, recollect, and the potential of individuals to precisely articulate their occurrence. Moreover, the physical investigation of survey data can be laborious and may not trap the difficult patterns and dealings that live within larger datasets.

To inscribe these restrictions, this journal presents a fiction proposal that captures the machine learning algorithm of linear regression to direct a survey of pressure carried out during business hours. By assimilating advanced computational methodology, we aim to improve the perfection, organizing, and depth of comprehension in assessing pressure in the business place.

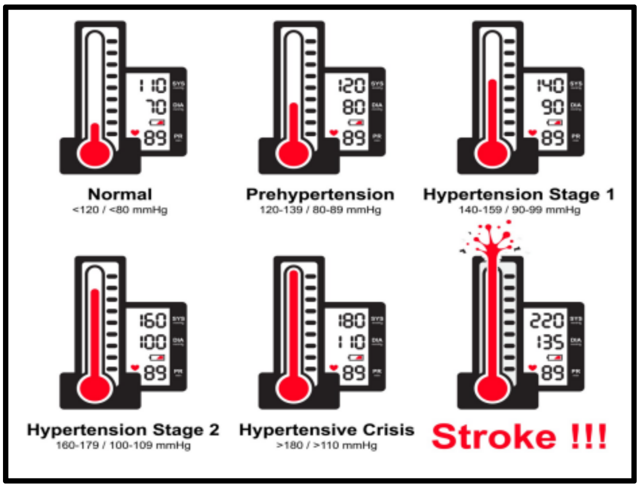

Fig 1.2-Hypertension Stages to a stroke

The use of machine learning algorithms in linear regression allows the inquiry of huge amounts of data collected from distinctive sources, including wearable technology, artificial intelligence channels, and work catalog. This data can provide a vast panoramic and aim representation of pressure levels by trapping the real-time mental, detectable, and circumstantial information. By assimilating these data origins, we can detect the hidden patterns and associations that contribute to workplace pressure and rectify potential stimulus or indicators that may have formerly gone hidden.

Besides, the implementation of machine learning algorithms enables the evolution of anticipating models that can expect pressure episodes, thus permitting for proactive mediation and the fulfillment of targeted master plans to mitigate workarea pressure. Such modulus can contribute to the design and enforcement of more potent well-being programs and interposition tailored to individual requirements, ultimately promoting healthier work surroundings and improving overall organizational implementation.

This periodical seeks to provide a complete overview of the study of pressure carried out during hours of work using machine learning algorithms such as linear regression. It will traverse the various data origins that can be used, the design and techniques working, and the possible benefits and difficulties associated with this proposal. By inspecting the current state of examination in this realm, we aim to outbuilding light on the chances and path for future investigation, ultimately prime to improved work area well-being and creativity.

OBSERVATION SET UP OF PRESSURE SURVEY

- **Contributor Selection:** Decide the features of the participants you want to involve in your study. This may define the demographic basis such as era, gender, profession, or any other applicable factors based on your inspection goal.

- **Form Development:** Develop a form that includes parameters related to pressure. These parameters should be sketched to measure the numerous dimensions or elements of pressure you are engaged in studying. Consider using proven scales or verified measures of pressures if obtainable.

- **Knowledgeable Consent:** Include a portion at the start of the form to obtain participants' knowledgeable consent. Explain the goal of the valuation, assure the participants of their invisibility and confidentiality, and tell them about their entitlement as participants.

NAME	BODY TEMPERATURE	GLUCOSE LEVEL	PEDOMETER	BLOOD PRESSURE	RESPIRATION RATE	HEARTBEAT COUNT	BODY MASS IND
PERSON 1	36.2	140 mg/dl	1200 steps	121/80	13	80	24.7
PERSON 2	36	135 mg/dl	2500 steps	120/80	12	73	23
PERSON 3	37	200 mg/dl	1800 steps	130/81	18	78	26
PERSON 4	36.5	180 mg/dl	1900 steps	123/79	14	90	28
PERSON 5	37.1	150 mg/dl	3000 steps	140/91	13	81	31

Table 1.1-Data collected from five different person

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Using the wearables, we have collected the parameters such as body temperature, glucose level, pedometer, blood pressure,respiration rate, heart beat count, body mass index. For person 1 we received the data of 36.2, 140 mg/dl, 1200 steps,121/80,13,80,24.7 are as follows.

We have taken the heart beat count as the target variable for the linear regression.

Program Code

```
import pandas as pd
From sklearn.linear_model import LinearRegression

# Create a Data Frame from the provided data
data = {
    'Body Temperature': [36.2, 36, 37, 36.5, 37.1],
    'Glucose Level': [140, 135, 200, 180, 150],
    'Pedometer': [1200, 2500, 1800, 1900, 3000],
    'Blood Pressure': ['121/80', '120/80', '130/81', '123/79', '140/91'],
    'Respiration Rate': [13, 12, 18, 14, 13],
    'Heartbeat Count': [80, 73, 78, 90, 81],
    'Body Mass Index': [24.7, 23, 26, 28, 31]
}

        df = pd.DataFrame(data)

# Separate the features (parameters) and the target variable
```

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```
X = df.drop('Heartbeat Count', axis=1)
y = df['Heartbeat Count']

# Perform linear regression
regression = LinearRegression()
regression.fit(X, y)
```

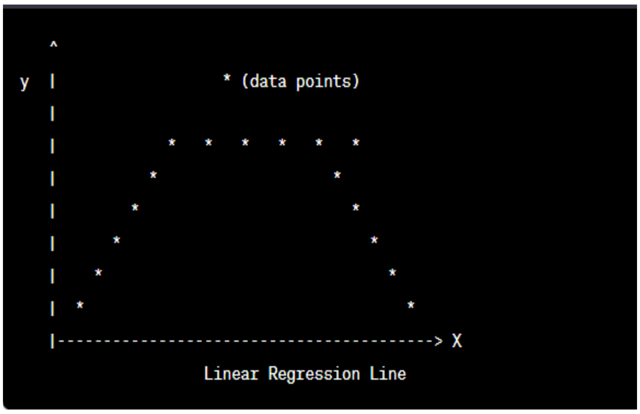

Fig 1.3- Diagram which illustrates the linear regression

The plot represents a simple dispel scheme of the particularity with respect to two adjustable, X and y. The y-center line represents the minor variable (in this instance, the heartbeat sum), and the x-center line represents the autonomous variable (one of the framework such as body temperature, glucose level, and so on)

The asterisks (*) describe the person particulars in the dataset. Each fact communicates a special value of the powerful adjustable (X) and the minor adjustable (y). The Machine learning algorithm i.e., linear regression can narrated by the following calculation,

$$y = mx + b$$

y is the heartbeat count

X is the body temperature, glucose level

M is the slope of the line between the heart beat count and the remaining parameters

b is the y-cut off, describing the value of y when x value is 0

The linear line on the plot portrays the linear regression line, which is the goal of almost the association between X and y. The column is relentless by the linear regression model and designed to decrease the length between the line and the data counts.

The dispersed plot and the linear regression range jointly provide an optical representation of the data and the suitable linear supermodels. This permits us to follow the inclusive trend and estimate how well the linear regression model ensnare the correlation between the variables.

CONCLUSION

In this proposed work, by using the linear regression methodology of machine learning algorithm, we conclude that person 2 and person 4 experience a relaxed state, person 1 experiences brisk state and person 3 and person 5 experiences drowsy state during their working hours.

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