



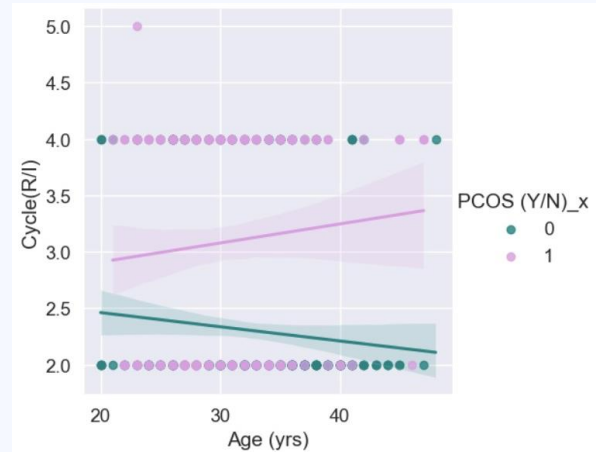
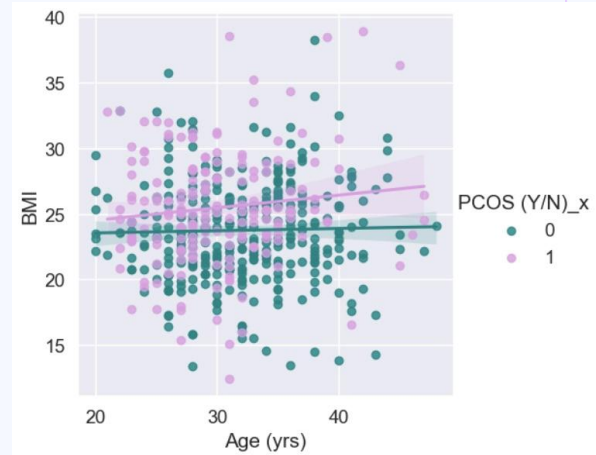
TOPIC: PCOS MODEL

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Introduction

Polycystic Ovary Syndrome (PCOS) is a common endocrine disorder that affects women of reproductive age. It is a complex condition characterized by hormonal imbalances, metabolic disturbances, and reproductive issues. PCOS is one of the leading causes of female infertility and can have significant impacts on a woman's overall health and well-being.

PCOS is a hormonal disorder with a potential to lead to various diseases. It also continues to be a common cause of infertility among women. Although signs and symptoms vary, the three most common factors associated with PCOS include ovulation irregularities, increased androgen levels, and cystic ovaries.

Reasons

Typically, healthcare providers diagnose PCOS if you have at least two of the three symptoms:

- Irregular or missed periods. Some people with PCOS have very heavy bleeding when they do have a period.
- Signs of excess androgens such as acne or excessive hair growth. Or a blood test confirming high androgen levels.
- Enlarged ovaries or polycystic appearance of ovaries on ultrasound. Many people don't develop cysts.

PCOS HEALING



CLASSIFICATION MODEL

We used three types of model such as :-



- ☐ **Logistic Regression Model**
- ☐ **Decision Tree Model**
- ☐ **Random Forest Model**



Logistic Regression Model: Logistic regression is a popular statistical method used for binary classification tasks, where the outcome variable is categorical and has two possible classes (e.g., Yes/No, True/False). The model estimates the probability of an observation belonging to a particular class based on the values of predictor variables. It estimates the probability of an observation belonging to a particular class and serves as a fundamental building block for more advanced machine learning algorithms.

Decision Tree Model : A decision tree model is a popular and interpretable machine learning algorithm used for both classification and regression tasks. It recursively splits the data into subsets based on the values of predictor variables, creating a tree-like structure to make predictions. The algorithm selects the best feature and threshold to split the data at each node, aiming to maximize information gain (for classification tasks) or variance reduction (for regression tasks). To make a prediction, data traverses the tree from the root node to a leaf node, following the decision rules at each internal node. The prediction at the leaf node is the final output.

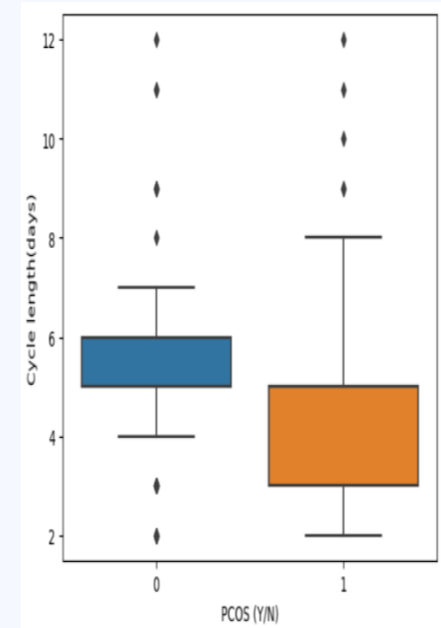
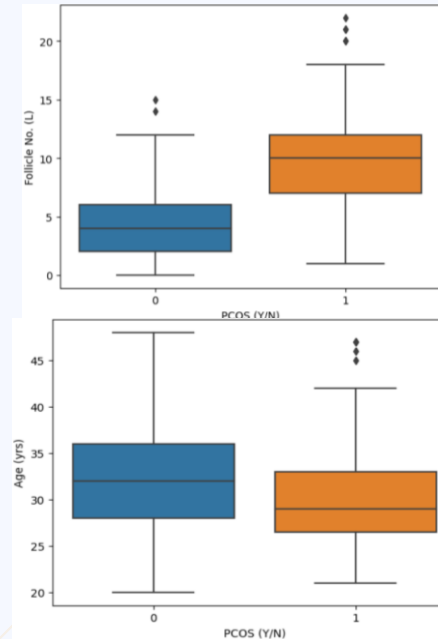
CLASSIFICATION MODEL

Random Forest Model : Random Forest is an ensemble learning technique that combines multiple decision trees to improve predictive accuracy and reduce overfitting. It is widely used for classification and regression tasks, providing robust and reliable results. The model can provide insights into feature importance, allowing for better understanding of the data's characteristics.

ANALYSIS

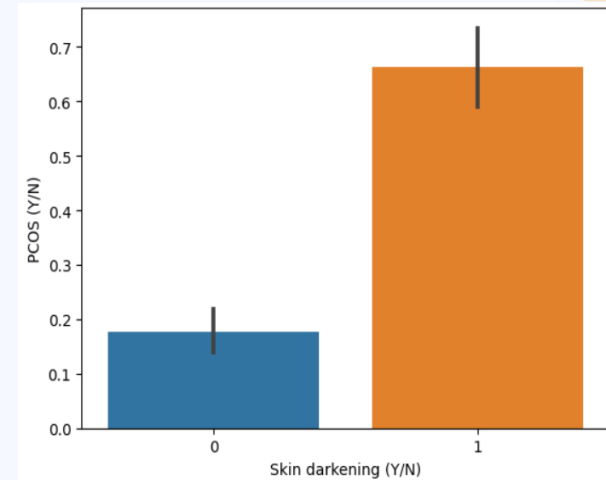
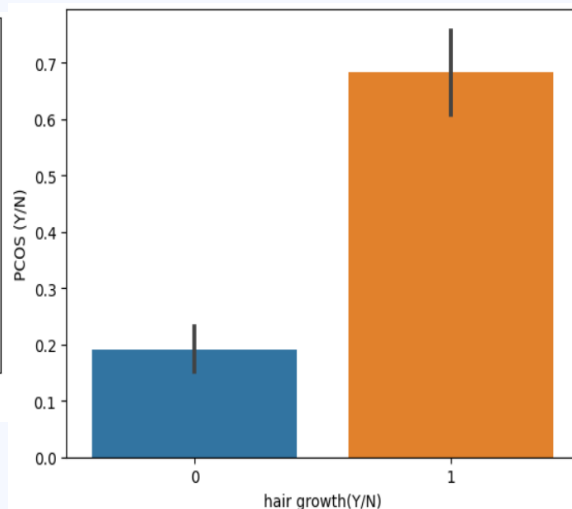
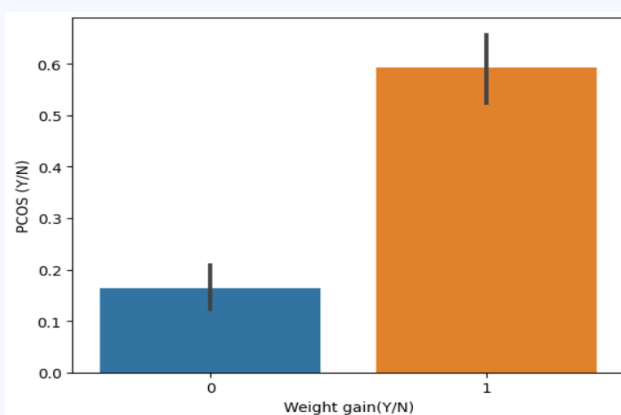
Observations from boxplot-

- ❖ Higher the follicle number more the tendency of PCOS
- ❖ Patients with lower cycle lengths means more tendency of PCOS
- ❖ The average age of patients diagnosed with PCOS is 30 years



Observations from Bar Plot

- ✓ Weight gain, hair growth, pimples, hair loss, fast food and skin darkening means higher chances of PCOS.
- ✓ 33 % of patients in our dataset are those having PCOS syndrome.
- ✓ According to current research, PCOS increases the risk of endometrial cancer in women of all ages, although it has no effect on the risk of ovarian or breast cancer. These findings point to the possibility of gynecological cancer morbidity as a result of PCOS.



REDUCTION TECHNIQUE

There is no cure for polycystic ovary syndrome (PCOS), but there are various management strategies aimed at reducing its symptoms and improving overall health. The treatment approach typically involves a combination of lifestyle changes, medications, and, in some cases, surgical interventions. It's important to note that individual experiences with PCOS may vary, and treatment plans should be tailored to the specific needs of each person. Always consult a healthcare professional for personalized advice.

CONCLUSION



PCOS is one of the most common disorders affecting women of reproductive age. As a syndrome, it has multiple components, including reproductive, metabolic, and cardiovascular, with long-term health concerns that cross the life span. It's important to note that medical knowledge is constantly evolving, and there may have been new developments in PCOS research and treatment beyond my last update in September 2021. Therefore, it's best to consult with a healthcare professional or a gynecologist for the most current and personalized information regarding PCOS.



Thank You
