



CAPSTONE PROJECT ONE

PLATEAU INSURANCE COMPANY

BY

DAKIM DUNG



INTRODUCTION

- ❖ IN INSURANCE COMPANIES, THE ATTRIBUTES OF CUSTOMERS CAN BE CRUCIAL IN MAKING BUSINESS DECISIONS.
- ❖ THE COMPANY WANTS TO HAVE A DETAILED UNDERSTANDING OF THE CUSTOMER BASE FOR ONE OF ITS INSURANCE POLICY '**MEDI-CLAIM**'
- ❖ THE IDEA IS TO GENERATE INSIGHTS ABOUT THE CUSTOMERS AND ANSWER A FEW KEY QUESTIONS WITH STATISTICAL EVIDENCE, BY USING THE PAST DATASET.
- ❖ THE DATASET 'PLATEAU INSURANCE' CONTAINS CUSTOMERS' DETAILS LIKE AGE, SEX, CHARGES, ETC.

AIM AND OBJECTIVES

- **AIM**

PERFORM AN ANALYSIS OF THE GIVEN DATA. EXPLORE THE DATASET AND EXTRACT INSIGHTS FROM THE DATA.

- **OBJECTIVES**

- PROVE(OR DISPROVE) THAT THE MEDICAL CLAIMS MADE BY THE PEOPLE WHO SMOKE ARE GREATER THAN THOSE WHO DON'T
- PROVE (OR DISPROVE) THAT THE BMI OF FEMALES IS DIFFERENT FROM THAT OF MALES.
- DOES THE SMOKING HABIT OF CUSTOMERS DEPEND ON THEIR REGION.
- IS THE MEAN BMI OF WOMEN WITH NO CHILDREN, ONE CHILD, AND TWO CHILDREN THE SAME

DATA VARIABLES

- **AGE** - THIS IS AN INTEGER INDICATING THE PRIMARY BENEFICIARY'S AGE (EXCLUDING THOSE ABOVE 64 YEARS, SINCE THE GOVERNMENT GENERALLY COVERS THEM).
- **SEX** - THIS IS THE POLICYHOLDER'S GENDER, EITHER MALE OR FEMALE.
- **BMI** - THIS IS THE BODY MASS INDEX (BMI), WHICH PROVIDES A SENSE OF HOW OVER OR UNDERWEIGHT A PERSON IS RELATIVE TO THEIR HEIGHT. BMI IS EQUAL TO WEIGHT (IN KILOGRAMS) DIVIDED BY HEIGHT (IN METERS) SQUARED. AN IDEAL BMI IS WITHIN THE RANGE OF 18.5 TO 24.9.
- **CHILDREN** - THIS IS AN INTEGER INDICATING THE NUMBER OF CHILDREN/DEPENDENTS COVERED BY THE INSURANCE PLAN.
- **SMOKER** - THIS IS YES OR NO DEPENDING ON WHETHER THE INSURED REGULARLY SMOKES TOBACCO.
- **REGION** - THIS IS THE BENEFICIARY'S PLACE OF RESIDENCE IN THE U.S., DIVIDED INTO FOUR GEOGRAPHIC REGIONS - NORTHEAST, SOUTHEAST, SOUTHWEST, OR NORTHWEST.
- **CHARGES** - INDIVIDUAL MEDICAL COSTS BILLED TO HEALTH INSURANCE

UNIVARIATE ANALYSIS

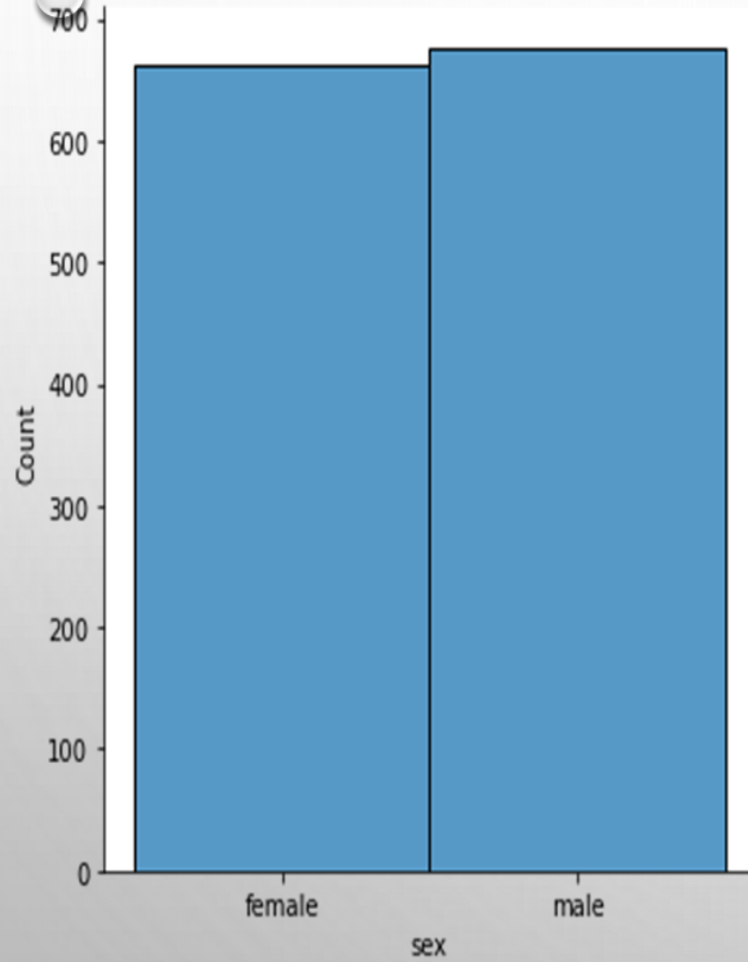


FIGURE 1

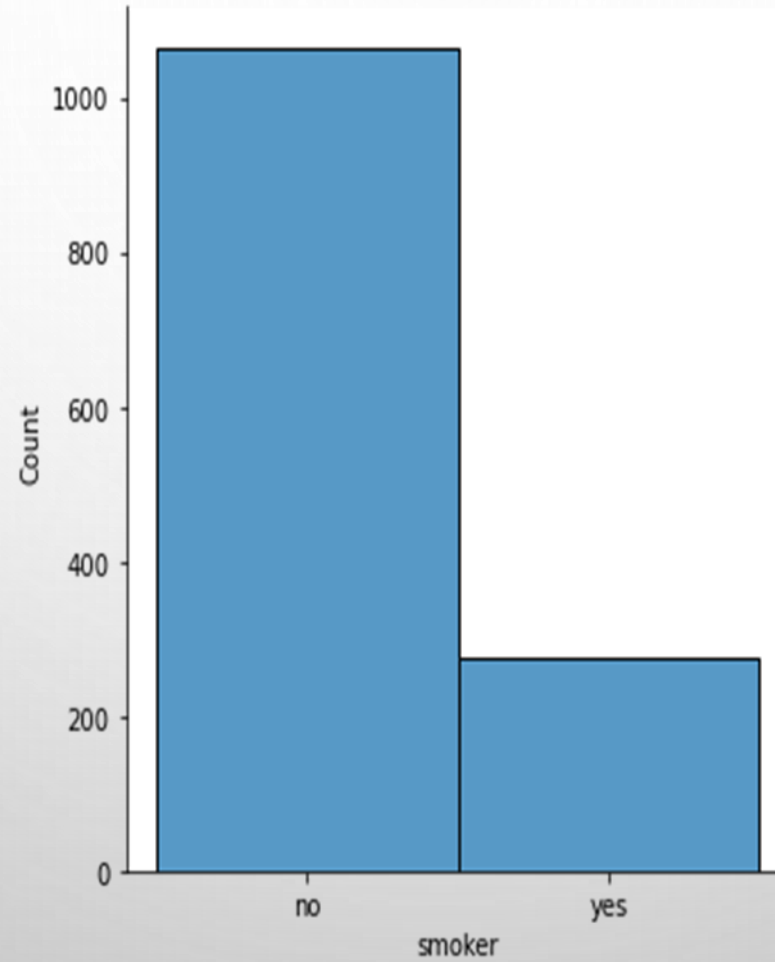


FIGURE 2

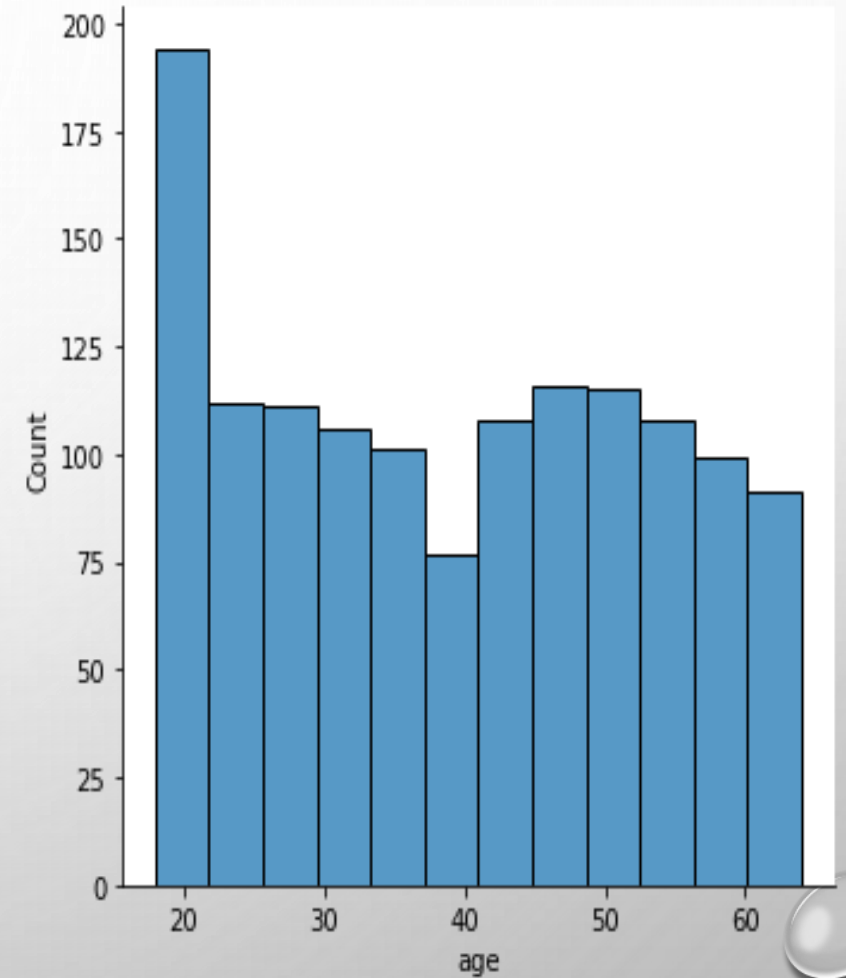
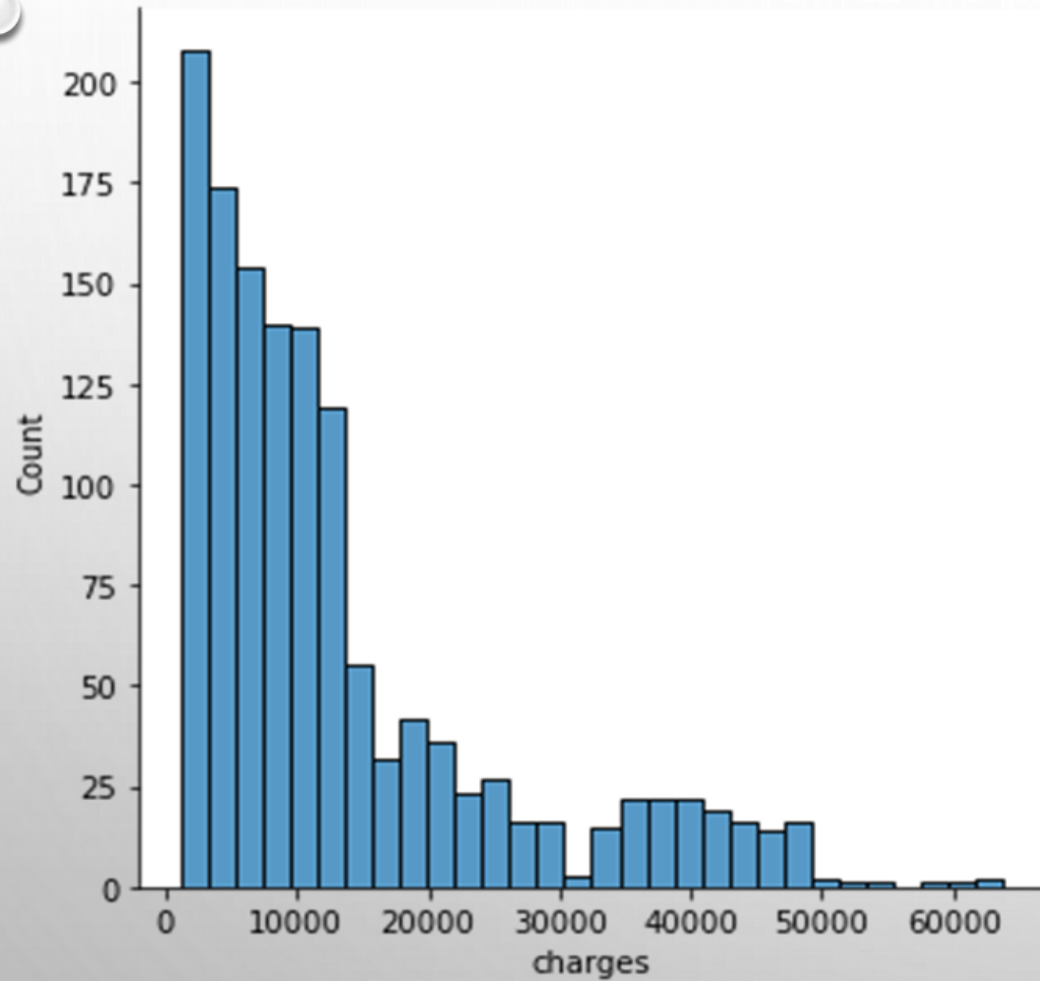
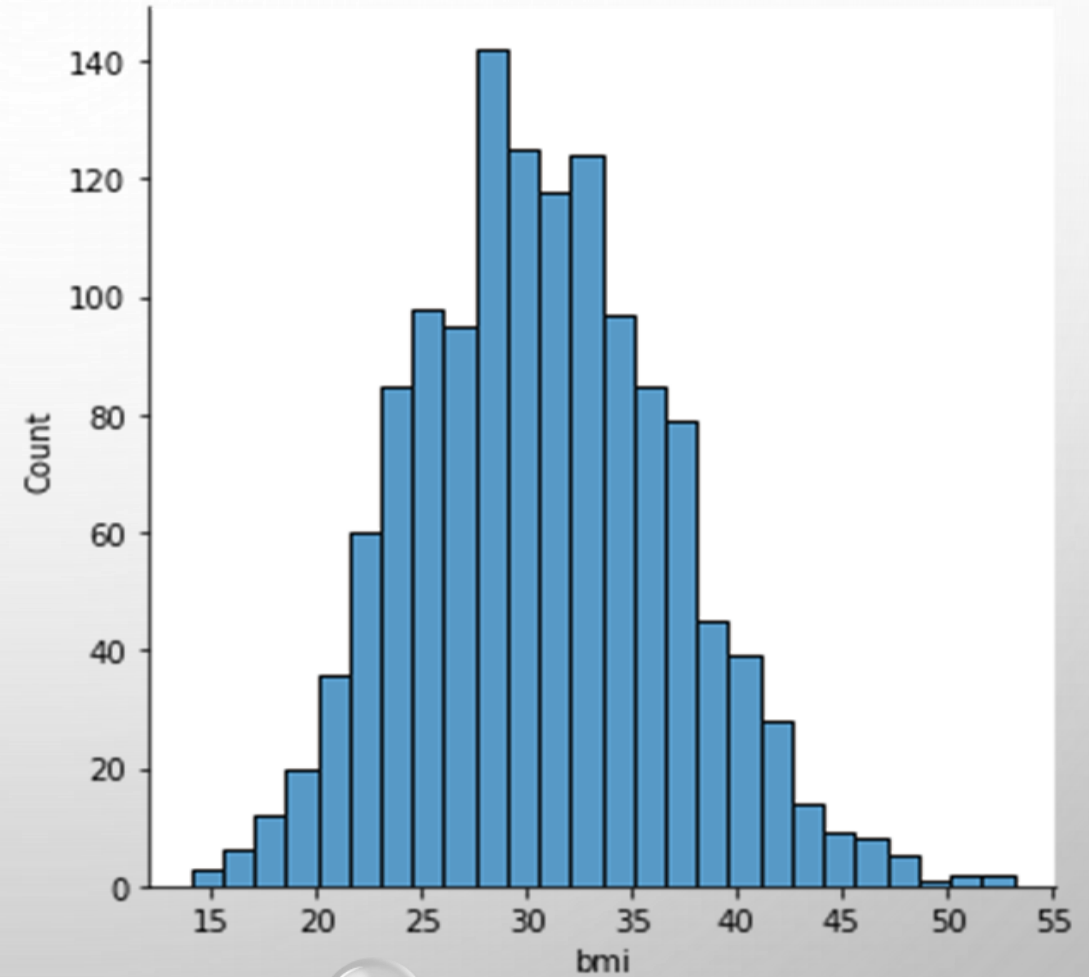


FIGURE 3

UNIVARIATE ANALYSIS



• FIGURE 4

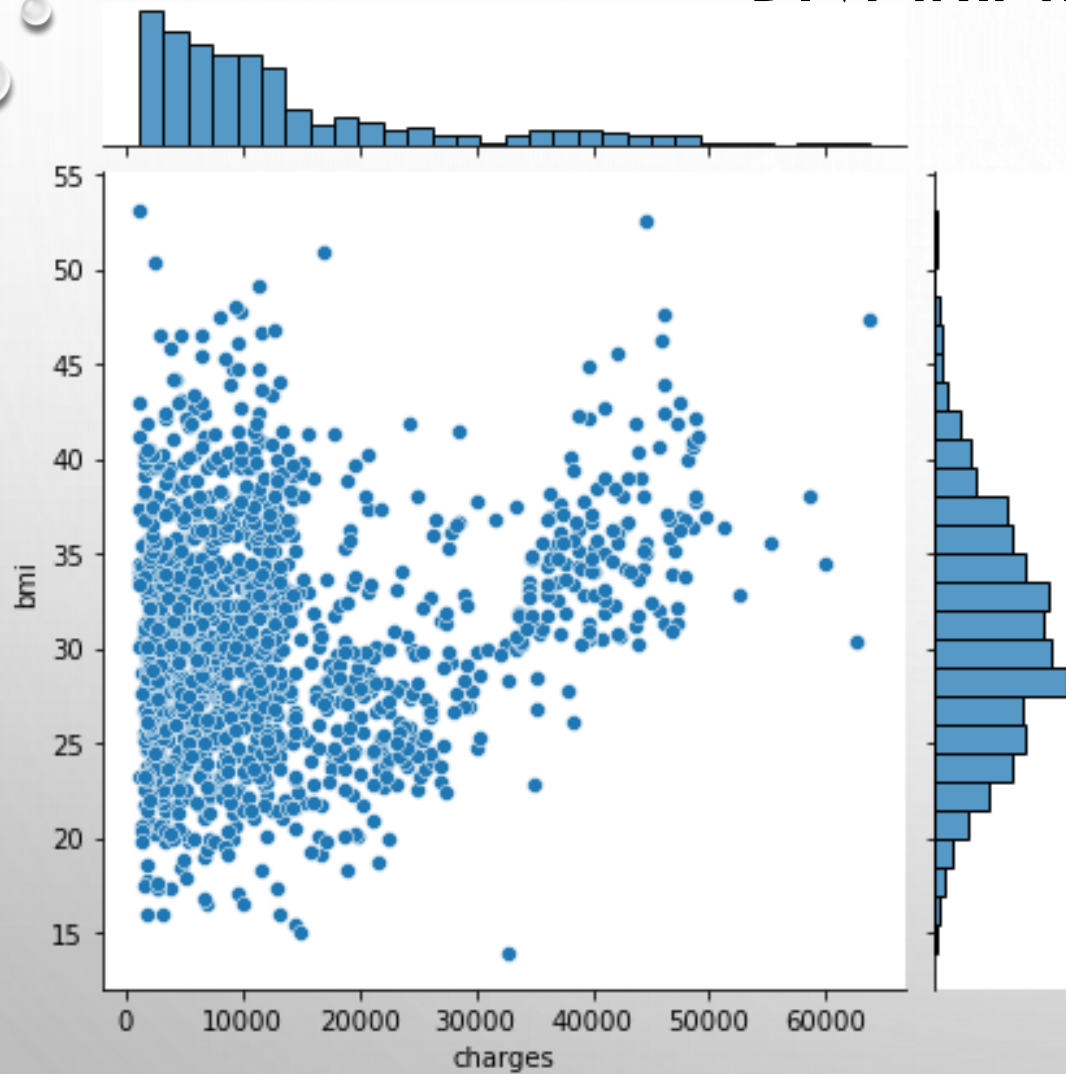


• FIGURE 5

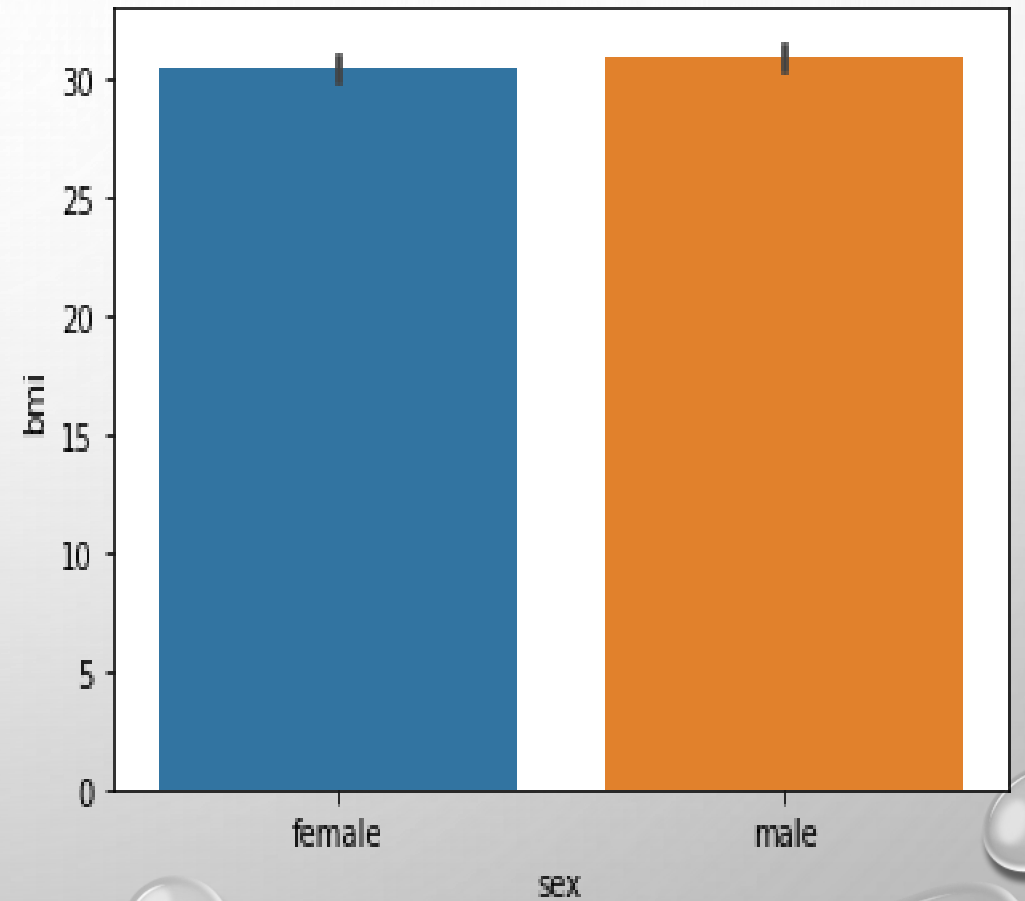
OBSERVATIONS: UNIVARIATE

- MAJORITY OF THE PEOPLE A BMI OF ABOUT 25 TO 35, OVER 140 HAVE A BMI OF 28 WHICH IS THE HIGHEST (**FIGURE 5**).
- MAJORITY OF THE PEOPLE CLAIM A CHARGE OF ABOUT 1000 TO 15000 (**FIGURE 4**).
- MAJORITY OF THE CLAIMERS THOSE IN THE AGE GROUP OF LATE TEENS TO EARLY TWENTIES (**FIGURE 3**).
- MAJORITY OF CLAIMERS ARE NOT SMOKERS, OVER A 1000 DON'T SMOKE WHILE 250(MORE OR LESS) SMOKE (**FIGURE 2**).
- MAJORITY OF THE CLAIMERS A MALES(676), WITH THE FEMALES(662), (**FIGURE 1**).

BIVARIATE ANALYSIS

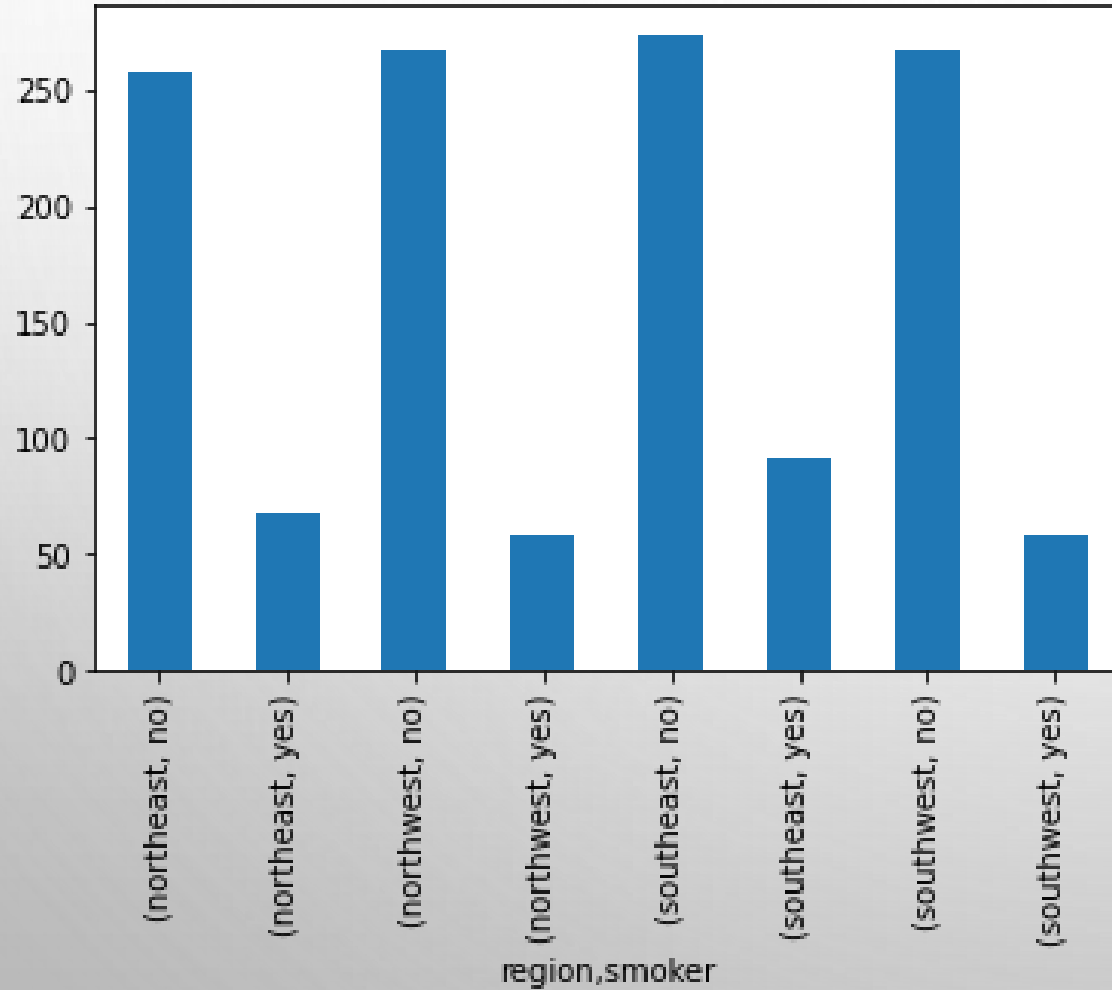


• FIGURE 6

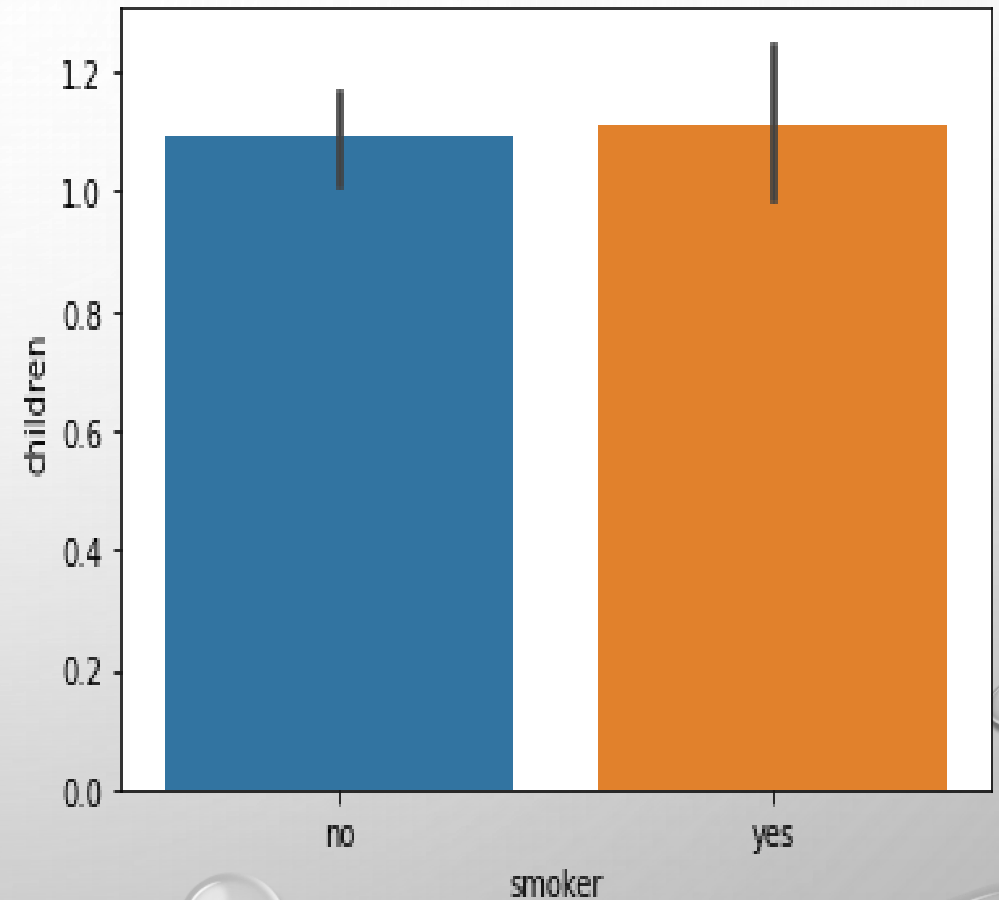


• FIGURE 7

BIVARIATE ANALYSIS

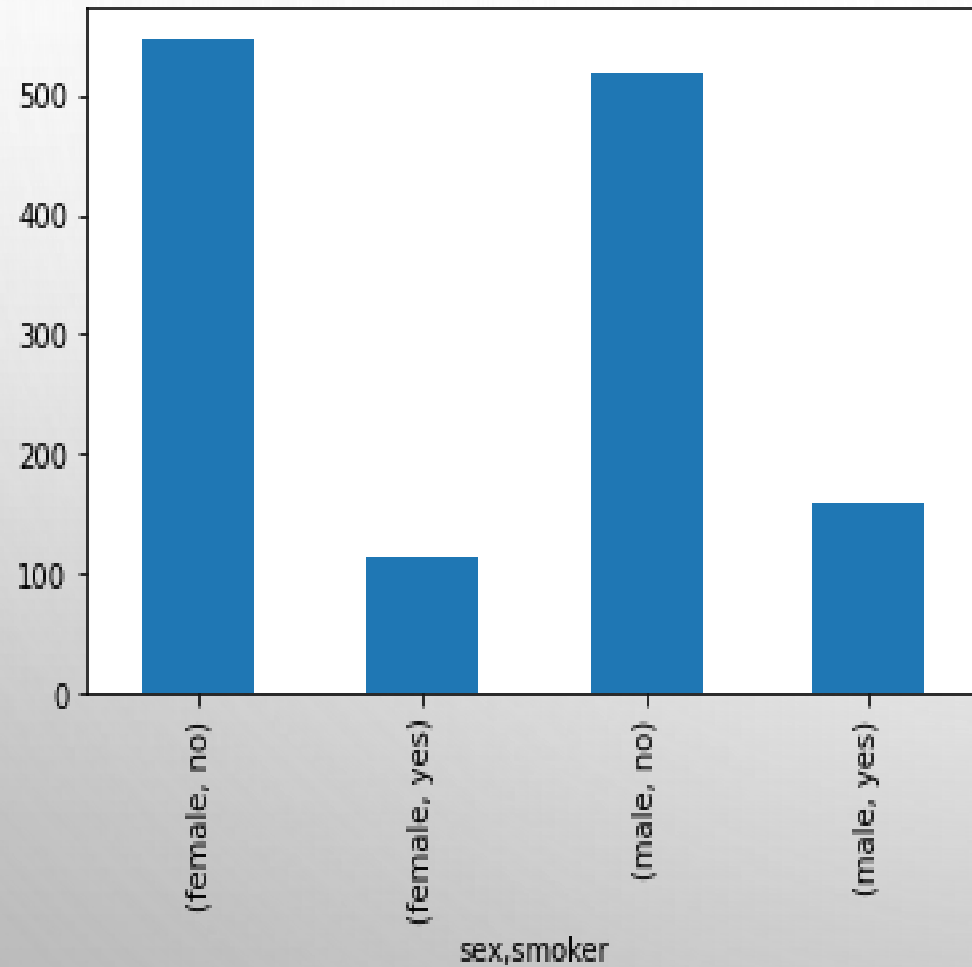


• FIGURE 8

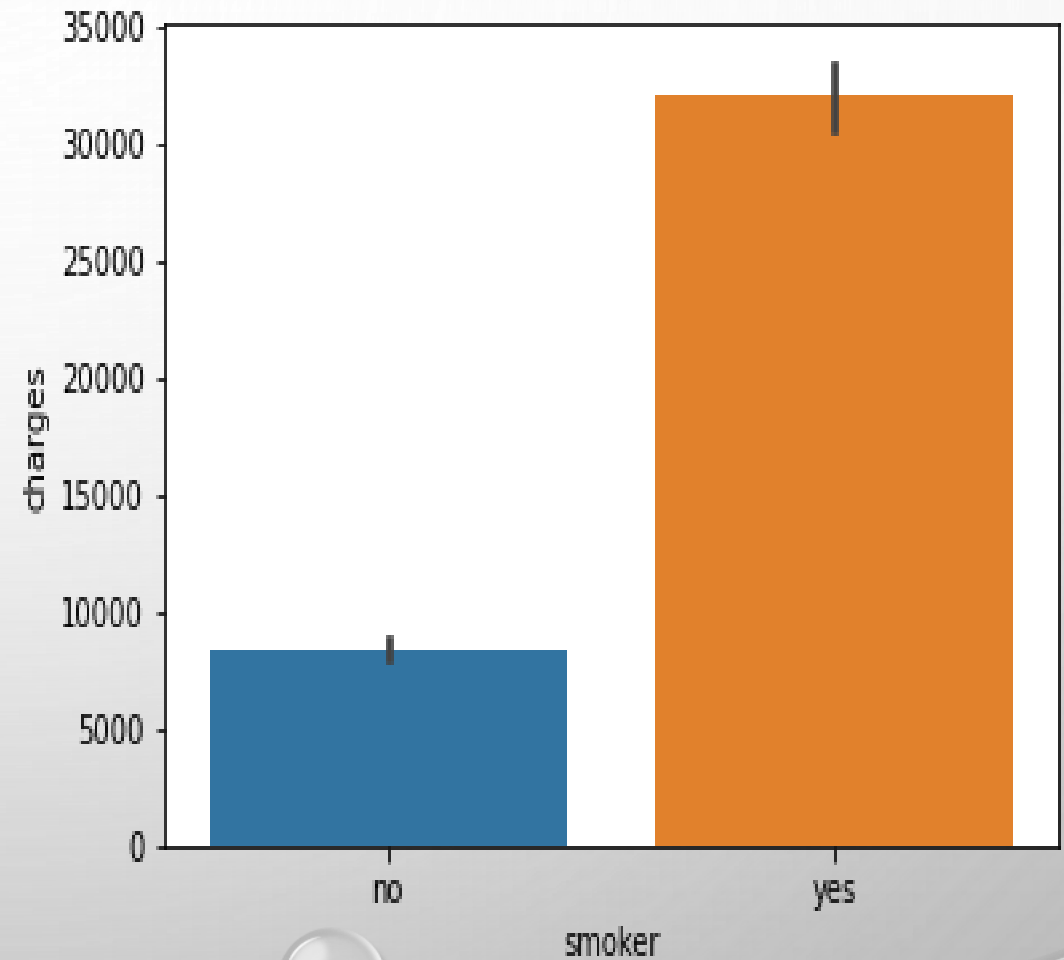


• FIGURE 9

BIVARIATE ANALYSIS



• FIGURE 10



• FIGURE 11

BIVARIATE ANALYSIS

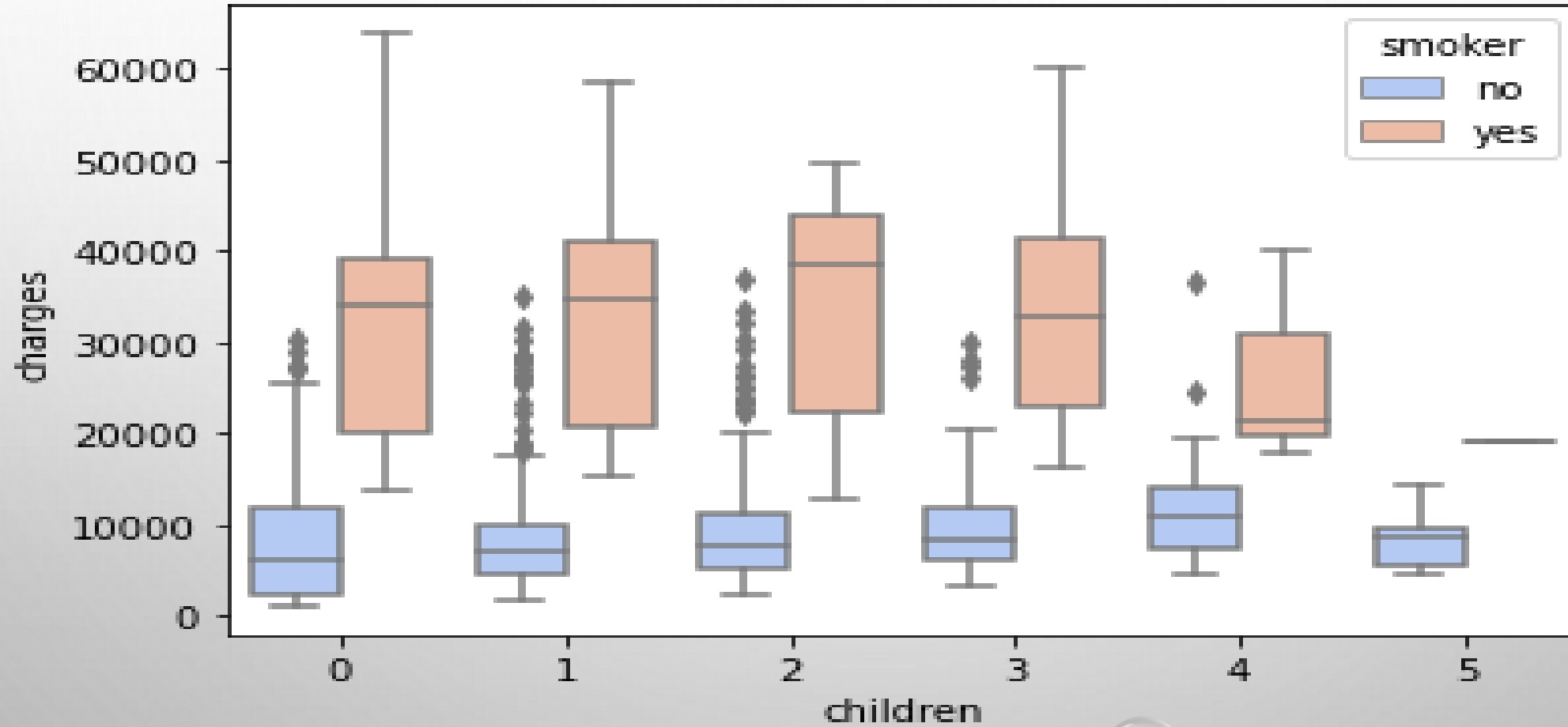
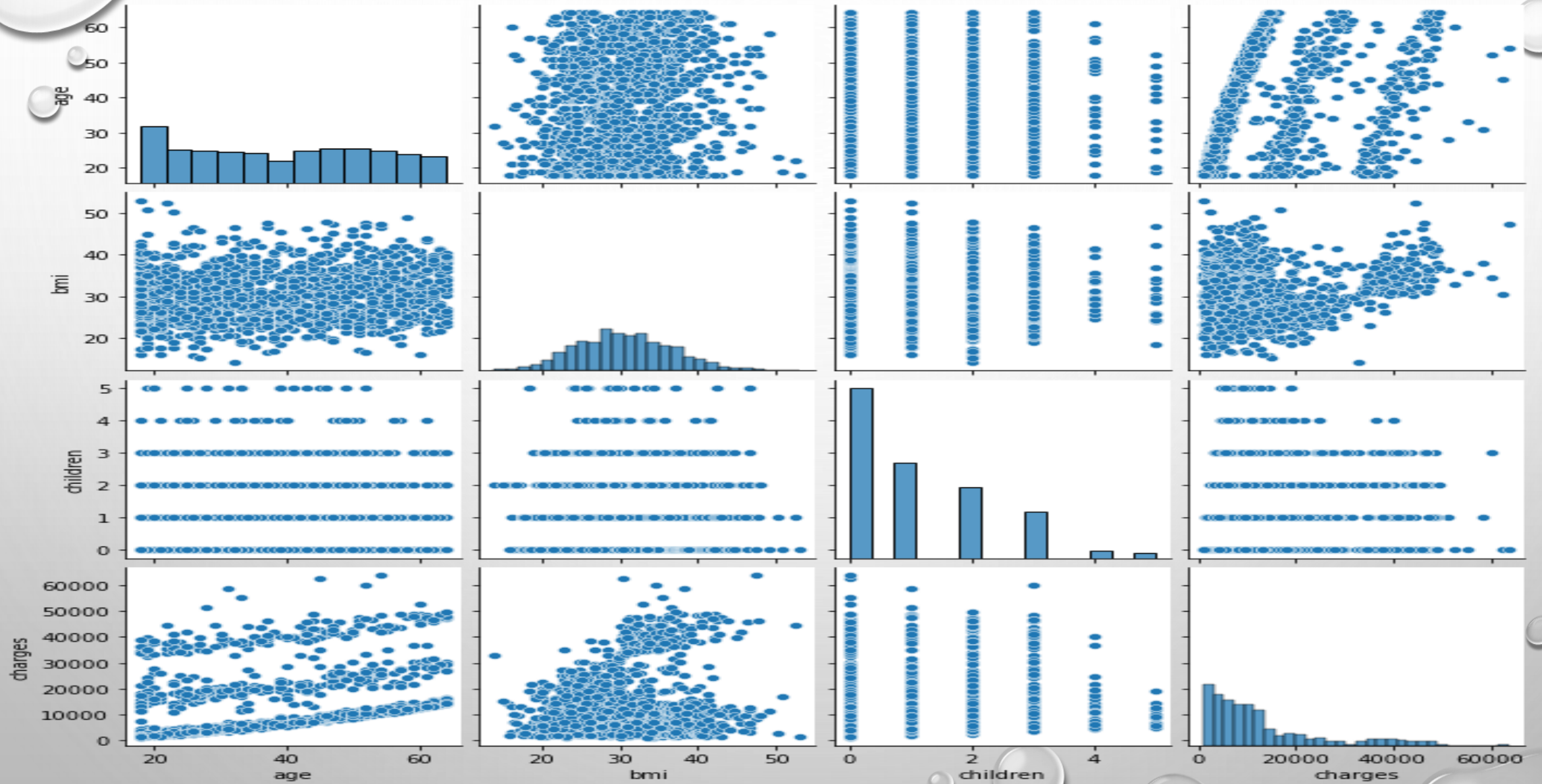


FIGURE 12

OBSERVATIONS: BIVARIATE

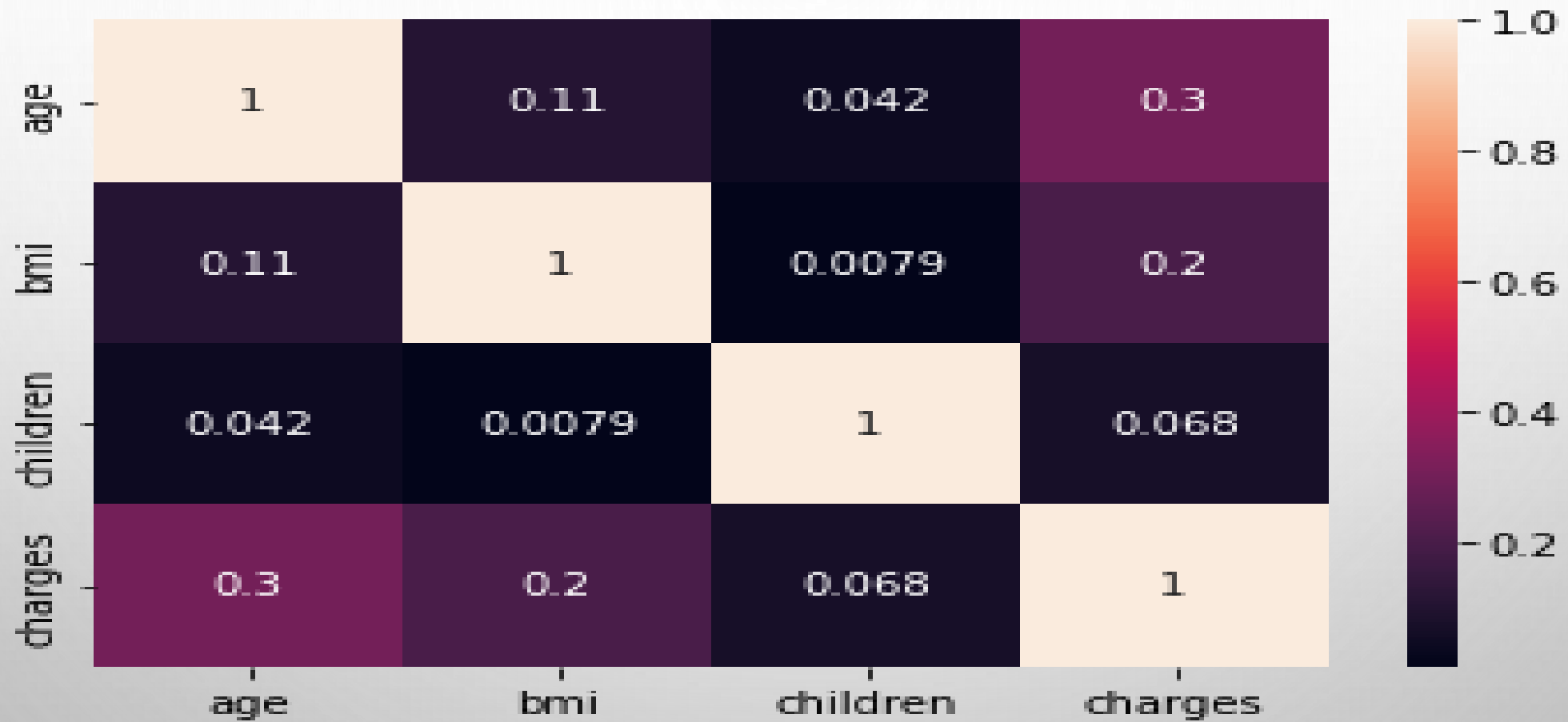
- THE PEOPLE WITH LESS BMI HAVE MORE CLAIMS AND VICE VERSE WITH THOSE PEOPLE WITH MORE BMI HAVE LESS CLAIMS (**FIGURE 6**).
- THE BMI OF MALES IS SLIGHTLY HIGHER THAN THAT OF FEMALES (**FIGURE 7**).
- PEOPLE IN THE SOUTH EAST REGION SMOKE MORE THAN ANY OTHER REGION (**FIGURE 8**).
- THE NUMBER OF MALE SMOKERS IS MORE THAN THAT OF FEMALE SMOKERS WITH THE VALUE RATIO OF 159 : 115 (**FIGURE 10**).
- SLIGHTLY MORE PEOPLE WITH CHILDREN SMOKE AND MOST OF THEM HAVE ONE CHILD (**FIGURE 9**).
- PEOPLE WITH CHILDREN WHO SMOKE HAVE MORE CLAIM (**FIGURE 12**).

MULTIVARIATE ANALYSIS



• FIGURE 12

MULTIVARIATE ANALYSIS



• FIGURE 13

OBSERVATIONS: **MULTIVARIATE**

- MOST OF THE VARIABLES HAVE WEAK CORRELATION WITH EACH OTHER AS THE VARIABLES WITH THE HIGHEST CORRELATION IN THIS DATASET ARE CHARGES AND CHILDREN WITH 0.3 WEAK(POSITIVE WEAK) AND MAJORITY OF THE VARIABLES HAVE LESS THAN 0.2(VERY WEAK POSITIVE) (**FIGURE 13**)

CONCLUSION

❖ FROM THE ANALYSIS ABOVE A CONCLUSION IT CAN BE SAID THAT;

- MEDICAL CLAIM BY THOSE WHO SMOKE IS GREATER THAN THAT OF THOSE WHO DON'T.(FIGURE 11)
- THE BMI OF FEMALES IS SLIGHTLY DIFFERENT TO THAT OF THE MALES, WITH THE MALES HAVING A SLIGHT INCREASE TO THAT OF THE FEMALES.(FIGURE 7)
- THE SMOKING HABITS OF CUSTOMERS DEPENDS ON THEIR REGIONS WITH THE SOUTHEAST REGION HAVING THE MOST SMOKERS WITH A NUMBER OF 91.(FIGURE 8)