**Name: Marwin Carmo**

For the following questions please use the sat\_act.csv file. You can download this dataset from the Homework 2 assignment page or under Files > Homework Assignments Files > Week 2 > Homework. It contains 50 observations on the following variables

* id
* gender
* education
* age (in years)
* ACT: composite scores from the ACT exam
* SATV: SAT verbal scores
* SATQ: SAT quantitative score

Provide your answers and the code you used for each question in the text boxes below. You may submit answers as text or screenshots. Note: The text has been set to blue inside the text boxes. This is intentional and will make it easier for the TA’s to see your answers.

1. Download the sat\_act.csv file and read it in. **[2 pt.]**

Answer:

id gender education age ACT SATV SATQ

1 1 female some college/university 19 24 500 500

2 2 female some college/university 23 35 600 500

3 3 female some college/university 20 21 480 470

4 4 male college/university 27 26 550 520

5 5 male high school 33 31 600 550

6 6 male graduate/professional 26 28 640 640

7 7 female graduate/professional 30 36 610 500

8 8 male some college/university 19 22 520 560

9 9 female college/university 23 22 400 600

10 10 female graduate/professional 40 35 730 800

11 11 male some college/university 23 32 760 710

12 12 female college/university 34 29 710 600

13 13 male college/university 32 21 600 600

14 14 female college/university 41 35 780 725

15 15 female some college/university 20 27 640 630

16 16 female college/university 24 27 640 590

17 17 female some college/university 19 33 640 650

18 18 female college/university 24 32 700 620

19 19 male college/university 35 28 640 580

20 20 female college/university 46 32 610 680

21 21 female high school 55 28 620 450

22 22 female college/university 25 30 600 500

23 23 male college/university 50 30 600 600

24 24 male college/university 35 31 460 540

25 25 male some college/university 21 30 680 650

26 26 female high school 34 30 700 700

27 27 female college/university 37 21 375 385

28 28 female graduate/professional 27 28 450 450

29 29 female graduate/professional 29 33 600 500

30 30 male some college/university 23 24 500 710

31 31 male some college/university 22 27 520 710

32 32 male college/university 23 31 620 570

33 33 male college/university 54 33 660 580

34 34 female some college/university 20 29 600 600

35 35 male high school 41 28 500 600

36 36 female graduate/professional 52 24 630 570

37 37 female some college/university 18 27 630 540

38 38 male graduate/professional 35 31 710 690

39 39 male college/university 27 28 530 610

40 40 female college/university 23 29 800 610

41 41 female graduate/professional 39 30 700 700

42 42 female graduate/professional 30 36 660 610

43 43 male graduate/professional 53 36 560 740

44 44 female some college/university 17 26 770 540

45 45 male college/university 27 33 660 650

46 46 male college/university 30 27 800 600

47 47 female college/university 34 23 440 440

48 48 female graduate/professional 27 33 800 690

49 49 male college/university 35 35 670 780

50 50 female college/university 24 28 680 600

Code/Syntax:

sat\_data <- read.csv("data/sat\_act.csv")

sat\_data

2. What class is each column of the data? (e.g., character, numeric, etc.) **[2 pts.]**

Answer:

id: integer

gender: character

education: character

age: integer

ACT: integer

SATV: integer

SATQ: integer

Code/Syntax:

str(sat\_data)

3. For each continuous variable, compute the mean and the median and report the values below. **[2 pts.]**

Answer:

Age: mean = 30.5, median = 27.0

ACT: mean = 29.1, median = 29.0

SATV: mean = 617.5, median = 625.0

SATQ: mean = 598.8, median = 600.0

Code/Syntax:

continuous\_variables <- c("age", "ACT", "SATV", "SATQ")

summary(sat\_data[continuous\_variables])

4. Compute the standard deviation for each continuous variable and report their values below. **[1 pts.]**

Answer:

Age: sd = 10.20

ACT: sd = 4.20

SATV: sd = 103.66

SATQ: sd = 90.90

Code/Syntax:

sd(sat\_data$age, na.rm = TRUE)

sd(sat\_data$ACT, na.rm = TRUE)

sd(sat\_data$SATV, na.rm = TRUE)

sd(sat\_data$SATQ, na.rm = TRUE)

5. Are the sample mean and sample standard deviations inferential statistics or descriptive statistics? Explain your reasoning. **[3 pts.]**

Answer:

The sample mean and sample standard deviation are descriptive statistics. They are used to describe and summarize a sample. They are not inferential statistics because we cannot use a sample mean and standard deviation to make any inferences about all the subjects in the population.