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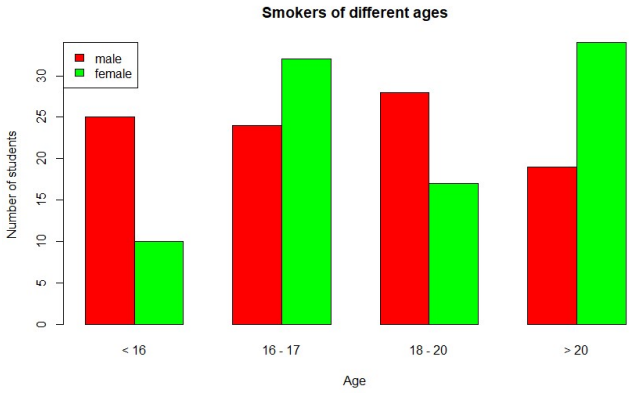
DATA PROJECT 2: <u>SECTION 14.3 Q31</u>

1. **PLOTS:**



In this bar chart, we can see that a large number of males start smoking before they were 16, or between 16 to 20 years old. Females, on the other hand, start smoking between the ages 16 and 17 and after the age of 20.

2. **PROBABILITY QUESTIONS:**

   a. Let A be the event in which people started smoking after the age of 16 and B be the event in which females started smoking after the age of 16. What is the probability that an individual started smoking after the age of 16, given that she is a female?
   Answer: $P(A|B) = 0.5390$
   b. Looking at question a, are the two events A and B independent or dependent?
   Answer: A and B are dependent as $P(A|B)$ is not equal to $P(B)$.
   c. If a sample of 20 people are taken, what is the probability that all of those people are males who started smoking before the age of 16?
   Answer: Probability = 0.8
   d. In how many ways can we choose 5 samples such that they are females who started smoking between the age of 16 and 17?
   Answer: $C_{5,25} = 53130$

3. **RELEVANCE:**

   Question: Was the population based on smokers of all ages and of the specified genders all around the world, or only in Britain (Since the article is from the British Medical Journal 2004)?