Project 1 Report

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**original.cpp**

* When I inputted a student sample size of 0, the percentages of people who like cats and dogs are outputted as "-nan(ind)%."
  + Inputs:

How many students participated in this survey? 0

How many students prefer a pet dog? 0

How many students prefer a pet cat? 0

* + Outputs:

-nan(ind)% preferred dogs. Ruff Ruff!

-nan(ind)% preferred cats. Meow.

It was more cats than dogs.

* + This nonsensical result is due to how the program calculates the percentage by dividing the inputs over the total sample size, so making that sample size 0 means dividing by zero which would undoubtedly cause some sort of output error.
* Another error occurs when the percentage of people who like cats or dogs is greater than the total student sample size:
  + Inputs:

How many students participated in this survey? 10

How many students prefer a pet dog? 11

How many students prefer a pet cat? 13

* + Outputs:

110.0% preferred dogs. Ruff Ruff!

130.0% preferred cats. Meow.

It was more cats than dogs.

* + This result is unusual because it doesn't make logical sense for the percentage of people within a sample size to be larger than 100%, but the program does not catch that error.
* A third error happens when the percentages of people who like cats or dogs is equal:
  + Inputs:

How many students participated in this survey? 10

How many students prefer a pet dog? 5

How many students prefer a pet cat? 5

* + Outputs:

50.0% preferred dogs. Ruff Ruff!

50.0% preferred cats. Meow.

It was more cats than dogs.

* + This result is illogical because the program displays that there were more people who preferred cats even though the percentages who preferred cats and dogs are exactly equal. This is due to the if-else statement used in the program which does not take into account what to display if the percentages of people who prefer cats or dogs are the same.

**logic\_error.cpp**

* I introduced an error in the calculation for the percentage of people who prefer dogs. On line 20, instead of 100.0 \* preferDogs, I changed it to 100.0 + preferDogs so that it outputs an incorrect percentage.
  + Inputs:

How many students participated in this survey? 10

How many students prefer a pet dog? 5

How many students prefer a pet cat? 4

* + Outputs:

100.0% preferred dogs. Ruff Ruff!

40.0% preferred cats. Meow.

It was more dogs than cats.

* It seems that a float and an int fraction does not sum properly, so the percentage calculation just spit out the float by itself which is why pctDogs's value was 100.0 regardless of what I inputted as the number of students who preferred dogs.

**compile\_error.cpp**

* On line 31, I deleted the ending double quotation mark for the "It was more dogs than cats" output.
  + The compiler tells me that I am missing a closing quote on line 31.
  + It also says that the << endl got included in constant because of the missing end quote on line 31.
  + It also tells me I am missing a semi-colon before the end curly bracket (}) because of the missing end quote.
* On line 20, I deleted the datatype identifier "double" when declaring the pctDogs variable.
  + The compiler tells me that the identifier pctDogs is undefined which makes sense
* Either one of these errors causes the project to fail to build.