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/* 1 */
libname Exam1 '/home/u64064016/ISFA/Exam1'; /* library name has maximum of 8
characters */
run;

/* Step 1: Generate metadata about the dataset */
proc contents data=Exam1.CREDIT_CARD_ATTRITION out=vars_metadata(keep=name type)
noprint;
run;

/* Step 2: Extract lists of numeric and character variables */
proc sql noprint;
    /* Create macro variables for numeric and character variables */
    select name into :num_vars separated by ' '
    from vars_metadata
    where type = 1 and name not in ('Naive_Bayes_Classifier_Attrition'); /*
Exclude the specified variable */

    select name into :char_vars separated by ' '
    from vars_metadata
    where type = 2;
quit;
/* use %put macro statement to check the macro variable value, make sure to
check log */
%put &num_vars;
%put &char_vars;

/* Step 3: Create dataset with numeric variables */
data Exam1.CC_ATT_NUM_DATA;
    set Exam1.CREDIT_CARD_ATTRITION(keep=CLIENTNUM Attrition_Flag &num_vars);
run;

/* Step 4: Create dataset with character variables */
data Exam1.CC_ATT_CHAR_DATA;
    set Exam1.CREDIT_CARD_ATTRITION(keep=CLIENTNUM Attrition_Flag &char_vars);
run;

/* 2. Generate frequency table for Education_Level */
proc freq data=Exam1.CC_ATT_CHAR_DATA;
    tables Education_Level / out=freq_count OUTCUM;
run;

/* 3. Define a macro to generate frequency tables */
%macro freq_table(varname);
    proc freq data=Exam1.CC_ATT_CHAR_DATA;
        tables &varname / out=freq_count OUTCUM;
    run;
%mend freq_table;
%freq_table(Education_Level);
%freq_table(Gender);

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/* 4*/
/* Paragraph 1: Create TEMP1 */
data Exam1.TEMP1;
    set Exam1.CREDIT_CARD_ATTRITION(keep=avg_open_to_buy attrition_flag);
    if attrition_flag = 'Attrited Customer' then do;
        good = 0;
        bad = 1;
    end;
    else do;
        good = 1;
        bad = 0;
    end;
run;
proc freq data=EXAM1.TEMP1;
tables attrition_flag;
run;

/* Paragraph 2: Create TEMP2 */
proc rank data=Exam1.TEMP1 groups=5 ties=low out=TEMP2;
    var Avg_open_to_buy;
    ranks group;
run;
proc freq data=Exam1.TEMP2;
tables group;
run;

/* Paragraph 3: Create BIN_TBL */
proc summary data=Exam1.TEMP2 nway missing;
    class attrition_flag group;
    var avg_open_to_buy good bad;
    output out=BIN_TBL
        min(group)=low
        max(group)=high
        sum(good)=good
        sum(bad)=bad;
run;

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