SAS Data sets for Q1 to Q3: WORK.customers

Q1-Q3. Observing the data set 'WORK.customers' and applying the procedure 'PROC REPORT' to create the following reports:

Note For Q1: The report lists the columns 'ID', 'SEX', 'INCOME', 'DEBT' and the newly created variable: 'debtincome_ratio=debt/income'. Additionally the observation filtering condition for this report is (a)'birth_day' is missing and (b)'income'>90000 and (c)'debt'>80000.

Outcome for Q1

ID	sex	Yearly Income	Yearly Debt	debt income ratio
441209	F	$100,000	$97,000	97.0%
462968	M	$97,000	$88,000	90.7%
1392133	.	$93,000	$88,000	94.6%
1768852	M	$92,000	$90,000	97.8%
2153447	.	$96,000	$88,000	91.7%
2186801	.	$98,000	$98,000	100%
2306827	F	$93,000	$82,000	88.2%
2956860	M	$96,000	$81,000	84.4%
2994402	M	$93,000	$83,000	89.2%
3172276	F	$95,000	$89,000	93.7%

Note For Q2: The report lists the mean value of columns 'CREDIT_HAS', 'INCOME', 'DEBT' and the newly created variable 'debtincome_ratio=debt/income' for each 'CREDIT_HAS' group.

Outcome for Q2

credit_has	AVG Yearly Income	AVG Yearly Debt	debt income ratio
.	$51,320	$26,209	51.1%
N	$51,896	$26,587	51.2%
Y	$51,133	$25,614	50.1%

Note For Q3: For each 'SEX' group, the report lists the mean value of the following columns (a)# of MAIL_REACHABLE='Yes' (b)# of MAIL_REACHABLE='No' (c)Mean value of the column 'INCOME'(d) Mean value of the column 'DEBT' (e)Mean value of the newly created variable 'debtincome_ratio=debt/income'. Additionally the filter condition of

report is that the value of column 'SEX' is not missing. Finally, the last line of the report contains the grand total summary.

Outcome for Q3

	mail_reachable				
sex	No	Yes	AVG Income	AVG Debt	debt income ratio
F	617	2589	$52,254	$26,241	50.2%
M	415	1833	$51,409	$26,097	50.8%
	1032	4422	$51,905	$26,181	50.4%

SAS Data sets for Q4 to Q5: WORK.Risk_data

Note on Q4: In this report you have the following two group variables 'high_risk_ind' and 'age'. As 'age' is a continuous variable, you need to define a format to bucket (group) it into the segments listed in the report. The report displays the following variables for each cell (grouped by 'high_risk_ind' and 'age')

(a) Non Missing Dependents Number.

(b)Missing Dependents Number.

(c)AVG # of 90 Days Overdue.

(d)AVG # of Revolving Accounts.

Finally the report will summarize the values after each 'age' group and a final grand summary in the last line.

Outcome for Q4

age	high_risk_ind	AVG # of Revolving Accounts	AVG # of 90 Days Overdue	Non Missing Dependents Number	Missing Dependents Number
18 to 30	0	5.0	1.1	3047	126
	1	5.0	6.3	424	18
18 to 30		5.0	1.7	3471	144
31 to 60	0	10.1	0.1	34328	529
	1	9.4	1.5	2880	32
31 to 60		10.1	0.2	37208	561
61 to 75	0	10.8	0.0	14197	510
	1	10.9	1.4	485	11
61 to 75		10.8	0.1	14682	521
75 PLUS	0	8.8	0.0	4160	363
	1	11.3	1.4	93	5
75 PLUS		8.9	0.0	4253	368
		9.9	0.2	59614	1594

Note on Q5: you will first use the following SAS codes to apply the format defined in Q4 to create a character variable 'agegroup':

```
proc format;
   value agegrp
         0='TOTAL'
         18 -<30 ='18 to 30'
         30 -<60 ='31 to 60'
         60 -<75 ='61 to 75'
         75 -HIGH ='75 PLUS';
run;
data WORK.Risk_data_1;
  set Risk_data;
  agegroup=put(age, agegrp.);
run;
```

Then using the 'PROC REPORT' to create the following report and save it into a PDF file using SAS ODS. Please note those columns displayed in the report are explained as followings:

- **'AGE'**: Variable 'agegroup' created in table 'Risk_data_1'. It is a group variable.
- **'ACC #'**: Total non missing observations in each 'agegroup' group.
- **'AVG Income'**: Average income each 'agegroup' group
- **'AVG Debt Ratio'**: Average debt ratio each 'agegroup' group

- **'AVG UT','MAX UT' and 'STD UT':** Average, Maximum and Standard Deviation of the variable 'utilization'.
- **Bad Rate:** Average value of the variable 'high_risk_ind'.

Outcome for Q5

AGE	ACC #	AVG Income	AVG Debt Ratio	AVG UT	MAX UT	STD UT	Bad Rate
18 to 30	3615	$42,946	20	51	133	41	12.2%
31 to 60	37769	$94,877	36	36	134	36	7.7%
61 to 75	15203	$94,833	31	22	131	30	3.3%
75 PLUS	4621	$74,763	18	13	114	25	2.1%
Total	*61208*	*$90,427*	*33*	*32*	*134*	*35*	*6.5%*