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/*SAS Data set for Q1 to Q5: WORK.Collectionrate*/
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```
/******SAS codes solution for Q1******/
```

```
data work.Collectionrate_new;  
  set Collectionrate;  
    tran_id=compress(agency_symbol||charge_date||'_'||_n_);  
  rate_change_ratio=compress(round(100*(rate_2006-rate)/rate,0.1)||");  
  If _error_ or rate=. then do;  
    _error_=0;  
    rate_change_ratio='N/A' ;  
  End;  
run;
```

```
data work.Collectionrate_NA;  
  set work.Collectionrate_new;  
  if rate_change_ratio='N/A' ;  
run;
```

```
/******SAS codes solution for Q2******/
```

```
data work.Collection_nomiss;  
  set work.Collectionrate_new;  
  if rate=. or rate=0 then delete;  
  rename rate=charge_ratio;  
  label agency_name=Collection Agency;  
  keep agency_name charge_date rate;  
run;
```

```
/******SAS codes solution for Q3******/
```

```
data work.Collection_nomiss (keep=agency_name charge_date charge_ratio);  
  set work.Collectionrate_new;  
  if rate=. or rate=0 then delete;  
  rename rate=charge_ratio;  
  label agency_name=Collection Agency;  
run;
```

```
/******SAS codes solution for Q4******/
```

```
data work.Collection_nomiss;  
  set work.Collectionrate_new (rename=(rate=charge_ratio));  
  if charge_ratio=. or charge_ratio=0 then delete;  
  label agency_name=Collection Agency;  
  keep agency_name charge_date charge_ratio;  
run;
```

```

/*****SAS codes solution for Q5*****/
data work.Collection_nomiss (keep=agency_name charge_date charge_ratio);
  set work.Collectionrate_new (rename=(rate=charge_ratio));
  if charge_ratio=. or charge_ratio=0 then delete;
  label agency_name=Collection Agency;
run;

```

```

/****SAS codes solution for Q6*****/
data temperature_city_tr;
  set temperature_city;
  city_name=city; season='spring'; Temperature=spring; output;
  city_name=city; season='summer'; Temperature=summer; output;
  city_name=city; season='fall'; Temperature=fall; output;
  city_name=city; season='winter'; Temperature=winter; output;
  keep city_name season Temperature;
Run;

```

```

/*****SAS codes solution for Q7*****/
proc sort data=Sales_records out=temp;
  by sales_id transaction_date;
Run;

```

```

data Sales_records_cum;
  set temp;
  by sales_id transaction_date;
  retain cum_sale;
  if first.sales_id then cum_sale=sale_amount;
  else cum_sale=sale_amount+cum_sale;
  if last.sales_id;
  format cum_sale dollar16.;
  keep sales_id cum_sale;
run;

```

```

/
/*****SAS codes solution for Q8*****/
proc sort data=Retail_sales out=temp;
  by Store_num date;
run;

```

```

data Retail_sales_new;
  set temp;
  by Store_num date;
  retain firstdate lastdate sales_cum numdays;
  if first.Store_num then do;
    firstdate=date;
    sales_cum=Weekly_Sales;
  end;

```

```
    numdays=1;
end;
else do;
    sales_cum=sales_cum+Weekly_Sales;
    numdays=numdays+1;
end;
if last.Store_num then do;
    lastdate=date;
    avg_sales=round(sales_cum/numdays,1);
    output;
end;
format firstdate lastdate date9. avg_sales dollar11.;
keep Store_num firstdate lastdate numdays avg_sales ;
run;
```