\*\* Accept variables

01 ws-temp-request.

05 ws-street-address pic x(25).

05 ws-city pic x(25).

05 ws-state pic x(02).

05 ws-zip-code pic 9(05).

\*\* Cache/Table by zip code

01 ws-current-temp-size pic s9(07).

01 ws-current-temp-size-max pic s9(09) value 50000.

01 ws-current-temp-tbl occurs 50000 times.

05 ws-current-temp-zip-code pic 9(05).

05 ws-current-temp-temp pic 9(03).

05 ws-current-temp-high pic 9(03).

05 ws-current-temp-low pic 9(03).

05 ws-current-temp-ext-for pic x(50).

\*\* Record to accept database table record

01 ws-db-current-temp.

05 ws-db-current-temp-zip-code signed word.

05 ws-db-current-temp-temp signed word.

05 ws-db-current-temp-high signed word.

05 ws-db-current-temp-low signed word.

05 ws-db-current-temp-ext-for text size is 50.

\*\* Database table that holds current temperature information

Forecast\_data.

Forecast\_zip\_code smallint.

Forecast\_current\_temp smallint.

Forecast\_high smallint.

Forecast\_low smallint.

Forecast\_ext\_for char (50).

Index on table forecast\_data:

Forecast\_data\_sort with column forecast\_zip\_code

No duplicates allowed

Type is sorted.

01 ws-misc-var.

05 x pic s9(07).

05 ws-time pic 9(08).

05 ws-time-limit pic 9(08).

05 ws-table-found pic 9(01).

Below is the program/assignment

0000-main-rtn.

Display ‘Welcome to temperature forecast by zip code’.

Display ‘to stop program execution, enter 99999 in zip code prompt’.

Perform 1000-accept thru 1000-exit.

Accept ws-time from time.

\*\* add 30 minutes to current time for table/cache cutoff

Compute ws-time-limit = ws-time + 00300000.

Move 0 to ws-current-temp-size.

Perform until ws-zip-code = 99999

\*\* Search table for zip code

Move 0 to ws-table-found

Perform varying x from 1 by 1

Until x > ws-current-temp-size

If ws-zip-code = ws-current-temp-zip-code (x)

Move 1 to ws-found-table

Perform 2000-display-temp

thru 2000-exit

move ws-current-temp-size to x

end-if

End-perform

\*\* Initialize record to accept database table row

Initialize ws-db-current-tbl

If ws-found-table = 0

\*\* zip code not found in table, retrieve from database

Select forecast\_data into :ws-db-current-temp

Where

Forecast-zip-code = :ws-zip-code

End-Select

End-if

If ws-db-current-temp-zip-code not equal spaces

And ws-found-table = 0

\*\* found temp/zip code in db, display, and store in table if before time limit

Perform 2000-display-temp

Thru 2000-exit

Accept ws-time from time

If (ws-time not > ws-time-limit) and (ws-current-temp-size < 50001)

\*\* under time limit and there is room to add to cache/table row

Add 1 to ws-current-temp-size

Move ws-db-current-temp-zip-code to

Ws-current-temp-zip-code (ws-current-temp-size)

Move ws-db-current-temp-temp to

Ws-current-temp-temp (ws-current-temp-size)

Move ws-db-current-temp-high to

Ws-current-temp-high (ws-current-temp-size)

Move ws-db-current-temp-low to

Ws-current-temp-low (ws-current-temp-size)

Move ws-db-current-temp-ext-for

Ws-current-temp-ext-for (ws-current-temp-size)

End-if

Else

Display ‘Forecast data not found for zip code, please try again “

End-if

Perform 1000-accept thru 1000-exit

End-perform.

Display ‘Forecast Data by Zip Code program has terminated ‘.

Display ‘Have a pleasant day’.

1000-accept.

Accept no advancing ‘Street Address: ‘ ws-street-address.

Accept no advancing ‘City: ‘ ws-city.

Accept no advancing ‘Street: ‘ ws-state.

Accept no advancing ‘Zip Code: ‘ ws-zip-code.

If ws-zip-code equal spaces or not numeric

Display ‘Invalid address, enter again! ‘

Go to 1000-accept

End-if.

1000-exit. Exit.

2000-display-temp.

If ws-found-table = 1

Display ‘The forecast data was found from the table/cache’

Display ‘The current temperature is ‘ ws-current-temp-temp (x)

Display ‘The forecast high is ‘ ws-current-temp-high (x)

Display ‘The forecast low is ‘ ws-current-temp-low (x)

Display ‘The extended forecast is ‘ ws-current-temp-ext-for (x)

Else

Display ‘The current temperature is ‘ ws-db-current-temp-zip-code

Display ‘The forecast high is ‘ ws-db-current-temp-high

Display ‘The forecast low is ‘ ws-db-current-temp-low

Display ‘The extended forecast is ‘ ws-db-current-temp-ext-for

End-if.

2000-exit. exit.