Phone Company Billing Solution

Description of Task

Phone company has call tracking solution which is able to save data about all customer's calls. This data is saved in variable length delimited text file as following:

- Customer Id   string
- Call date   date in format YYYY-MM-DD
- Call time   time in format HH:MM:SS
- Area code   string
- Duration in seconds   integer

Delimiter in this file is ;

Solution to be created using MS SQL Server and Borland Delphi:

- Import data from call tracking system saved as a text file
- Create monthly invoices for customers
- View created invoices

Task details

1. Create script for creating database with all needed tables
2. Create procedure using Delphi for importing data from call tracking system
3. Create procedure in SQL database for creating monthly invoices
4. Create master / detail form using Delphi for viewing created invoices

Data structures and formats

NB! Key fields in tables are marked with *

1. Database table for customers
   - Customer Id   string   12   *
   - Customer Name   string   32
   - Address   string   256
   - Payment Term Id   string   12
2. Database table for payment terms
   - Payment Term Id   string   12   *
   - Term Description   string   32
   - Days to Due   integer
3. Database table for call rates
   - Area Code   string   12   *
   - Area description   string   32
   - Rate   float   in terms EUR/min
4. Database table for saving imported calls
   - Customer Id   string   12   *
   - Call Date/Time   datetime   *

- Area Code   string   12   *
- Year   integer   from call date for quicker queries
- Month   integer   from call date for quicker queries
- Call Duration   float   in minutes
- Invoiced   datetime   date when invoice was created

5. Database table for invoice headers
   - Invoice No   integer   *
   - Customer Id   string   12
   - Invoice Date   datetime
   - Payment Term Id   string   12
   - Due Date   datetime
   - Net Amount   float   in EUR
   - VAT Amount   float   in EUR
   - Total Amount   float   in EUR

6. Database table for invoice lines
   - Invoice No   integer   *
   - Line No   integer   *
   - Area Code   string   12
   - No of Calls   integer
   - Duration   float   in minutes
   - Rate   float
   - Line Amount   float   without VAT

Needed procedures

Procedure for importing data
Parameters:

- File name where data from call tracking system is

Additional conditions:
We expect that we have raw imported data in temporary table (create this table also) and all this data has to be converted. Procedure should check:

- Procedure should check if customer exist. If not, change customer code with *
- Procedure should check if line is already imported. If yes – skip the line

Procedure for creating monthly invoices
Parameters:

- Invoice year   integer
- Invoice month   integer

Additional conditions:

- Procedure should create invoices for all existing customers for month indicated in parameters. Invoice should include all not invoiced calls until this month

- Invoice is created only if invoice total amount is greater or equal to 1 EUR. If amount is less then such call will be invoiced in next month (see previous condition)
- There should be one Invoice line for all calls to one area.
- Invoice date should be the last day of month indicated in parameters
- VAT is 20% for all customers
- All invoiced calls should be marked as invoiced by entering invoice date in field Invoiced in calls table