Tremplin C# Database Application Development Compressed

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Abstract- Over the time developers have been trying to develop an Automated System which generates all required codes automatically. Many projects have attempted to achieve a concept called the Zero Code which is almost impossible.Tremplin is software which generates partial code automatically based on developers input for projects involving data entry screens. This software saves considerable amount of time spent for the developing code, testing and maintaining uniformity. Hence it is rightly described as Save Time in Every Project. Tremplin can auto generate code for data entry screen containing New, Save, Delete, Import Export and Search functionalities. Developing applications in Tremplin is simple. It does not require any special skills and only skill that is expected as a user is database design and SQL writing Skills.

Key Words- build code, forms, database, menu, common code, save time, report, standard product.

INTRODUCTION

Tremplin is software to create software for database application. Tremplin is a French word which means jump board. You can use Tremplin to quickly develop your database application. To understand what Tremplin is let us look at software development cycle. Businesses will have some process to be automated. They will narrate their requirement and software engineers makes note of it in the form of project requirement document. Depending on requirement a Database will be designed. Software engineers then do documentation, coding, testing and build software deployment. All these takes lot of time and then software is delivered back to business. You may note that project development takes lot of time in the whole process, mainly because lot of manual coding is being done. Tremplin replaces manual coding and allows you to just configure itemsand it will generate all the code required. Thus Tremplin develops a quality software with a very short time.Tremplin cannot be used for all type of application development. However, for database application development Tremplin works like a Magic wand.

TREMPLIN WORKSFLOW

Tremplin generates complete database applications without hand coding. You have to follow Simple steps for developing application in Tremplin.

A. *Connect Database to Project:*

Having a database as per the software requirement is one of the essential pre requisite to build application in Tremplin[8]. The user can either create a database in a regular method or user can design the database in excel template defined by Tremplin and Tremplin can create required database. Tremplin supports 4 popular databases – SQLite, MS Access, MY SQL, MS SQL.

B. *Create forms for Each Table or Combination of Tables:*

Once the database is connected you can define data entry forms for each of the tables or a combination of tables. Form generated depending on table will have controls for each field of the database, the user can configure each of these controls[1] and build strong validations. Generated form will have code for common data from commands like – New, Save, Delete. Tremplin also includes special controls like – "Open file dialogue" or "Email Link" so it is just configuring controls on the form to get required working forms.

C. *Include Business Logic:*

Tremplin comes with strong expression builder using which most of the events related to controls can be configured as properties and business logic related code will be generated during output. Users need to build SQL Statements while configuring control properties and SQL Statements can be executed within Tremplin[7].

D. *Create Additional Forms:*

Create search, report forms in addition to data entry forms by using feature Tremplin's feature rich controls. Grid Properties can be configured to greater extent which enables

users to add any other data display forms like dashboard. building search forms are also easy as Tremplin list most popular search criteria possibilities for each of the database fields. User needs to decide which field he needs to include in the search form and how they have to behave in that particular form[2].

E. Import available Data:
Include feature rich importing feature within your application by just selecting the import fields and configuring their behaviour while importing data. Tremplin creates excel templates to help end users to import data quickly to applications built using Tremplin.

F. Include Report:
One of the most attractive features of Tremplin is developing reports. You can develop report templates and then convert them to Tremplin report file and call them from report forms. Tremplin includes feature rich reporting tool.

G. Design Menu and Assign Respective Form:
Once you are done with creating required forms, create menu structure and assign respective forms each of the menu items. Tremplin includes flexible menu definition tool.

H. Standard Product:
When you develop application in Tremplin output will be standard product as you can choose most widely used essential features of any product like daily tip, multiple file management capabilities, user management, work flow, software security, version control, backup restore and also application built by Tremplin will include status update and progress bar display feature.

I. Configure calling External Applications:
In addition to all this if your application requires external application, they can be called by passing related dynamic parameters from within Tremplin[10].

J. Create Base Documentation on a Fly:
Once you are done with designing forms, configuring controls and relating them to menu, you can create base documents from Tremplin for SRS, design and help.

K. Build Code and Installation Script:
Tremplin generates organized code, once you are done with the above steps and application will also be built in the specified directory. Along with generating source code, you can also create an installation script so that you can quickly build setup and deploy them easily[3].

I.   UML DIAGRAM

The Unified Modeling Language (UML) is a general-purpose visual modeling language that is used to specify, visualize, construct and document the artifacts of a software system [12][14]. Now a days Unified Modeling Language is used by the software industries for various software

designers. The purpose of use case diagram is to capture the dynamic aspect of a system[12][14]. UML use case diagram of the Tremplin below.
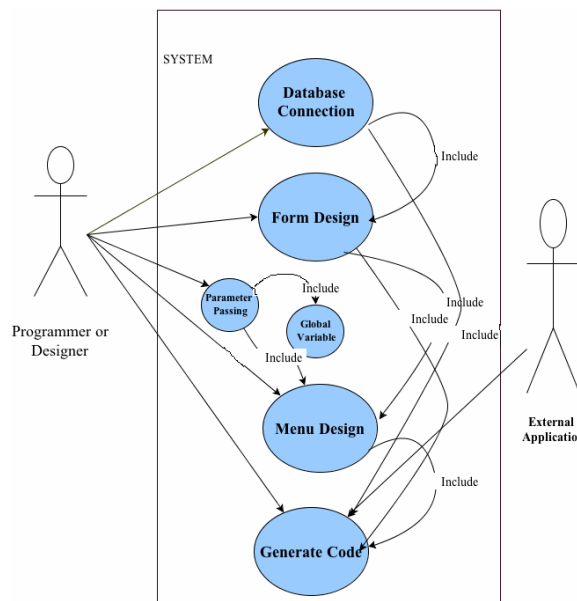

Figure 1: Tremplin Use Case Diagram

Activity diagram is another important diagram in UML to describe dynamic aspects of the system. UML Activity diagram diagram of the Tremplin below[12][14].
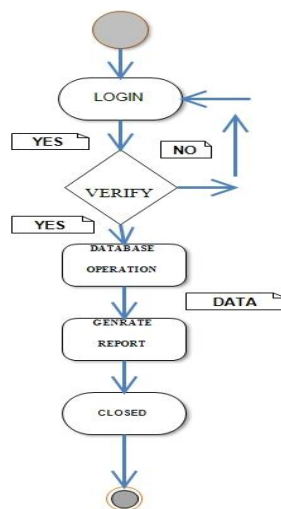

Figure 2: Tremplin Activity Diagram

A sequence diagram ties use cases with objects. It shows how the behavior of a use case (or scenario) is distributed among its participating objects. Sequence diagrams are usually not as good a medium for communication with the user as use cases are, since sequence diagrams require more background about the notation[12][16].
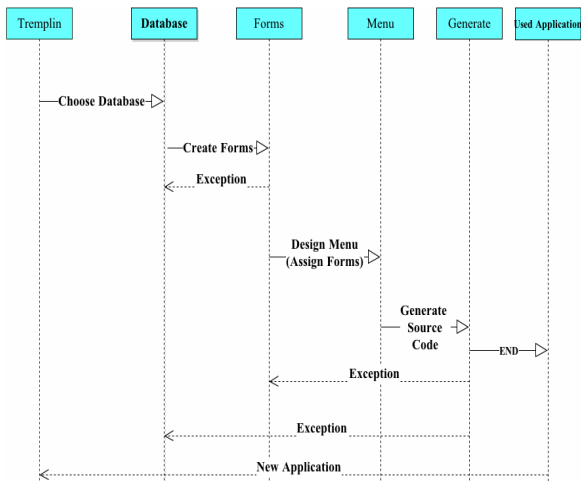
Figure 3: Tremplin Sequence Diagram

II. FLOW DIAGRAM

A flowchart is a picture of the separate steps of process in sequential order [13][16].
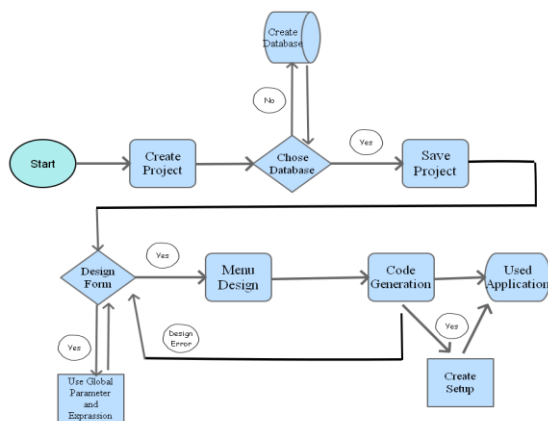

Figure 4: Tremplin Basic Flow Diagram

III. CONCEPT

A. Common Code:
Normally all these application allow creating new file, opening file, backup restore, auto download latest version, help menu items, about forms, starting opening up screen and User management. This is classified as common code in Tremplin[8].

B. Data Entry Screen:
Developing this portion of project is not very interesting and most of the error happens in this portion of code as there will not be much focus on documenting things as each control of the whole project has to be almost repeatedly designed.

C. Business Logic:
Applying Business Logics as per the particular client requirement.

Tremplin tries to address first 2 portions of the project and Tremplin users still have to develop codes related to business logic to finish the application[5]. Tremplin supplies common code and eases development of data entry forms. Which will help to the user where

- Time can be saved.
- Bugs can be avoided.
- Uniformity can be brought in whole application.
- More focus can be given on business logic.
- It will provide well structure code.
- Tremplin will provide the facility to support multiple databases.
- Tremplin provide easy way of report creation.
- Allow reusing of portion of project and quality projects can be completed well in time.

Tremplin having 5 components: Now let us look at 5 components of the project one by one

- Common Code
- Data Entry Forms
- Menu
- Installation
- Business Logics

A. Common Code:
Most of the data centric business applications need to have following features

1. *Creating new file:*Normally all the files that gets generated related to project to be stored in one particular directory, called default directory. This has to be a sub folder under application directory, there should be provision for user to change this default directory in case if he wants to store data files in this directory. However, user should be given option to generate the file where ever he wants during file creation process**.**
2. *Opening File:* When opening the file program has to check, is this file belongs to current database version, if not, it has to upgrade the application to latest version database and then open it.
3. *Recent Files:* All the recently opened files to be stored in registry so that last opened files can be shown under recent files menu.
4. *Associating Icon:* While installing the application only this can be taken care. That is associating the icon with extension of the project. However it is better to handle it via code so that whenever application runs association of icon with extension gets properly registered and this has to happen only

in case the extension is not already associated (Means if there is no registry entry).

5. *Back Up & Restore:* Backing up of data to be allowed only to users with admin privileges, All the data can be exported in CSV format and then can be zipped with password protection. In future if the user creates a new project and restores the data then password protected zip to be unzipped and data to be restored.

6. Starting opening up screen: This will be simple splash screen, but here we need to check is the application protected. Is the last opened file is password protected, if yes, then appropriate login screens have to be pooped up.

7. User management: Application has to come with default screens for creating users, assigning role and changes password options. Related database to be created to be created automatically.

B. *Data Entry Forms:*
There is variety of Forms for Data Entry. We will focus on most common 7 Type of data Entry forms. Currently Tremplin will be developed with Following Type of Forms

1. *Single Grid:*Single form means Master Form where in records are entered, saved and deleted corresponding to the fields which are table of the database. Records will be saved in the grid below and by selecting the record transactional operations can be performed. Here data display, new entry delete all will happen in single grid.

2. Single Master without Grid: In this form include controls and the data are entered in this form are saved in the database.

3. *Edit Grid*: These forms capture data for Single Table but difference between Single Grid and this will be that, In Single Grid user will be able to enter data through the controls but in the Grid user can enter or update the data in Grid Only. Normally grid will be non-editable in such forms.

4. *Parent Child:*In this parent child form parent table contains entry field along with Grid but in the Child Table contains only Grid.

5. *Parent Child Detailed Grid:*In this type of Form where parent and child both table having entry field along with grid view where data are displaying in the grid.

6. *Search Form:* This is mainly for generating complex search quarries depending on the database fields selected. It will be capable of handling – Multiple Field Selection, Date between, Serial Number Between, Anywhere in the table kind of search requirements.

7. *Custom Form*: In this Form we can design form by using controls according to user requirement.

C. *Menu:*
Tremplin to allow creation of menu with in the application only as while generating code respective forms can be attached to respective menu items.

D. *Installation:*
Since building installation is now extremely simple with installation setup, we can just provide a simple readymade installation file. User can then add required files to setup by using comments that we have defined in installation.

E. *Business Logics:*
Once the data entry forms are ready, end user can created reports, additional validations, and additional forms and complete his project quickly. Tremplin will not be of much help to him.

IV. LIMITATIONS

We cannot develop all types of applications in Tremplin. Tremplin is designed to develop only database application. Most of database application common requirements have been studied in detail and Tremplin is developed. Most of the regular requirements can be developed without coding using Tremplin. However, if there are further requirements – like you want your database application to send SMS, you have to manually code only that portion of application. Tremplin generate 100% editable code for you.

V. CONCLUSIONS

Since Tremplin generates code automatically depending on the configuration you make for each control, user can save considerable development time. Generated application will hardly require testing as code generated has been already tested during Tremplin development only. Also, since Tremplin prepare base documents for most of

general documentation requirements of a project, it saves considerable time in documentation also. Tremplin develops code which can be opened with Visual Studio Express[5] edition and also since Tremplin has inbuilt ready to use special developed controls and adds great capabilities to grid and controls, there will be hardly any requirement to buy 3rd Party control including reporting tool. Tremplin comes with its own reporting tool. Since application developed by Tremplin is kind of machine code, there is hardly any chance for issues creeping up. This results in quicker development, faster implementation and fewer support calls from end user. All in all helps users to build good reputation with shorter product development life cycle.

ACKNOWLEDGMENT

REFERENCES

[1]Bryan Newsome. "Beginnig Visual Basic 2012".1sted.Wrox.John Wiley & Sons,Inc. Canada. pp.209-590.April 2012.

[2] Joseph Albahari and Ben Albahari ."c# 5 IN A NUTSHELL" .5th ed.Oreilly Media,Inc. Sebastopol. pp.509-545. June 2012.

[3] Bruce Johnson. "Professional Visual Studio 2012".1sted. Wrox.John Wiley & Sons,Inc. Canada.pp.251-480. November 2012.

[4] Mike Snell." Microsoft Visual Studio 2012 Unleashed ".2nd ed. Sams Publishing.USA. pp.145-356 November 2012.

[5] Michael Halvorson." Microsoft Visual Basic 2010".pap ed. Microsoft press.Washington. pp- 224-460. May 2010.

[6] Andrew Moore."Visual Studio 2010 All-in-One For Dummies". 1st ed. For Dummies. pp.90-243. June 2010.

[7] Ray Rankins."Microsoft SQL Server 2008   R2 Unleashed".1st ed. Sams Publishing.USA. pp.709-1159. September 2010.

[8] DusanPetkovic." Microsoft SQL Server 2008: A Beginner's Guide". 4th ed. McGraw-Hill Osborne Media. USA. pp.220-290. July 2008.

[9] Ivar Jacobson, Grady Booch, James Rumbaugh. The Unified Software Development Process.1st ed. Addison-wesley, pp.141-206. Mass. February 1999.

[10] Michael Blaha, William Premerlani. Object-Oriented Modeling and Design for Database Applications. 1st ed. Prentice Hall,Upper Saddle River. pp.70-241. July 1998.

[11] Grady Booch. Object Solutions: Managing the Object-Oriented Project. 1st ed. Addison-Wesley Professional, Menlo Park, Calif.pp 131-265. October 1996.

[12]Tutorial   Point.   Simply   Easy Learning.Internet:http://www.tutorialspoint.com/uml, [January 2013]

[13] ASQ. " Flow chart" Internet :http://asq.org, [January 2013].

[14] Franck Barbier."UML 2 ET MDE".1st ed. Dunod. Paris. pp.121-150. June 2005.

[15]   Sankartech.   "Activity   Diagram"   Internet http://sankartech.wordpress.com/2013/09/07/activity-diagram/. September 2013.

[16] Bernd Bruegge, Allen H Dutoit, "Object oriented software engineering", Third Edition, Prentice Hall, New York,Pp-185, 2010.