

Chapter 3

Design and Development

Introduction

The [Statistical data and Story library in the South African context \(SSS\)](#) consists of a database on the one side and a Web front-end communicating with the database on the other side. The design and development aspect was therefore two-fold: the design and development of a database that will be populated, over time, with questions to which the Vista first-year student can relate, and the Web page that will be the portal to the database.

Database design and development

A detailed report on the design and development of the SSS database is given in [Appendix: database](#). The report is written in such a manner as to help the novice through all the frustrations/pitfalls/anxiety experienced when one knows what one wants (a database and a Web site communicating with it) but doesn't have an idea where to start.

The following specifications were followed during the process of designing and developing the database:

Specifications	Results
<p>Communicate with the first-year Statistics lecturers to determine what information they want from the database. Because the lecturers are spread over many campuses, facilitate a "chat group" in order to come up with realistic requests. Emphasise the fact that one can start small and add options as the product matures.</p>	<p>The lecturers requested information on:</p> <ul style="list-style-type: none"> ▪ The statistical method, e.g. ANOVA ▪ The level of examination (at this stage the database is targeted only at first-year students, so this was left out) ▪ Grading of the questions (Easy/Moderate/Difficult). The emphasis of this product is on supplying the "story" and "data", with "model questions" on that information. It is up to the lecturer to customise it to his/her needs. ▪ A choice of topics such as health/crime, etc.

Database Design Specifications (continued)

Specifications	Results
Determine what groups are needed to store facts about (the tables in the database) e.g. methods/topics/levels.	Initially there will be three tables: <ul style="list-style-type: none"> ▪ “Questions” that will accommodate the actual questions. ▪ “Method” that will be a list of the Statistical methods. ▪ “Topic” that will be a list of the topics.
Determine what facts need to be stored about each group (the fields in the tables).	<ul style="list-style-type: none"> ▪ In the “Questions” table there will be the following fields: MethodID, TopicID, Storyname, Story, Pdf , Doc, Picture. ▪ In the “Method” table there will be the following fields: MethodID, Method. ▪ In the “Topic” table there will be the following fields: TopicID, Topic.
Determine the relationship between the tables.	This will be a one-to-many relationship, connecting the “Questions” table, via the MethodID and TopicID, to the “Method” and “Topic” table.
Study well designed databases similar to the one that is going to be designed.	<p>“Your First Database” by Greenspan was carefully studied as well as the existing “Data and Story Library” (DASL) on the Internet.</p> <p>The SSS does not have all the options of DASL, but DASL has its own powerful search engine and SSS uses basic query language.</p>

Design and Development (continued)

Web page Design

- Web page design Specifications** The portal to the database (the page) should comply with the following specifications:
- Clearly state what the SSS is.
 - Because the target group might be novice Internet users, clear instructions must be given on how the user will access the database. This should be clearly visible on the first screen without having to scroll down.
 - Navigation should be intuitive, predictable, consistent and highly visible.
 - Use a sans serif font that is easily readable.
 - Use colour/graphics/text to create a user-friendly environment. The “look-and-feel” should be consistent throughout the site. Because “Statistics” and “South African Context” appear in the title, graphics depicting some statistical concept, say a histogram with ethnic colours, will be appropriate. Because “forms” are used to access the database information, a background image can be used to make it less intimidating.
 - Use text emphases (larger font/different colour) to draw the audience’s attention to important information.
 - Both Internet Explorer and Netscape should support the design requirements.
 - Contact/feedback information must be available.
 - “Other links” should have links to other similar, on-line applications, e.g. [DASL](#). The lecturers should recognise ownership of this product and help to add value to the site by surfing for additional links to relevant information.
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Design and Development (continued)

Database-interface Development.

Specifications

- Choose the operating system
 - ✓ Windows 98
 - Choose a server that runs on the Windows operating system and that supports Hypertext Transfer Protocol, Active Server Pages and ODBC-driver.
 - ✓ The initial development was done on the Personal Web Server which is part of the Internet tools of the Windows environment.
 - ✓ The final product will be loaded on the Internet Information Server of Vista University.
 - A basic knowledge of the following is necessary:
 - ✓ HTML: Basic coding and forms or the use of an HTML – editor.
 - ✓ Microsoft Access to develop the database.
 - ✓ Active Server pages.
 - ✓ Structured Query Language.
 - ✓ VisualBasic Script.
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Development

A detailed report on the development of the database-interface is given in [Appendix: database](#).
