

Database and Web Search Application for Disabled Adults and Children

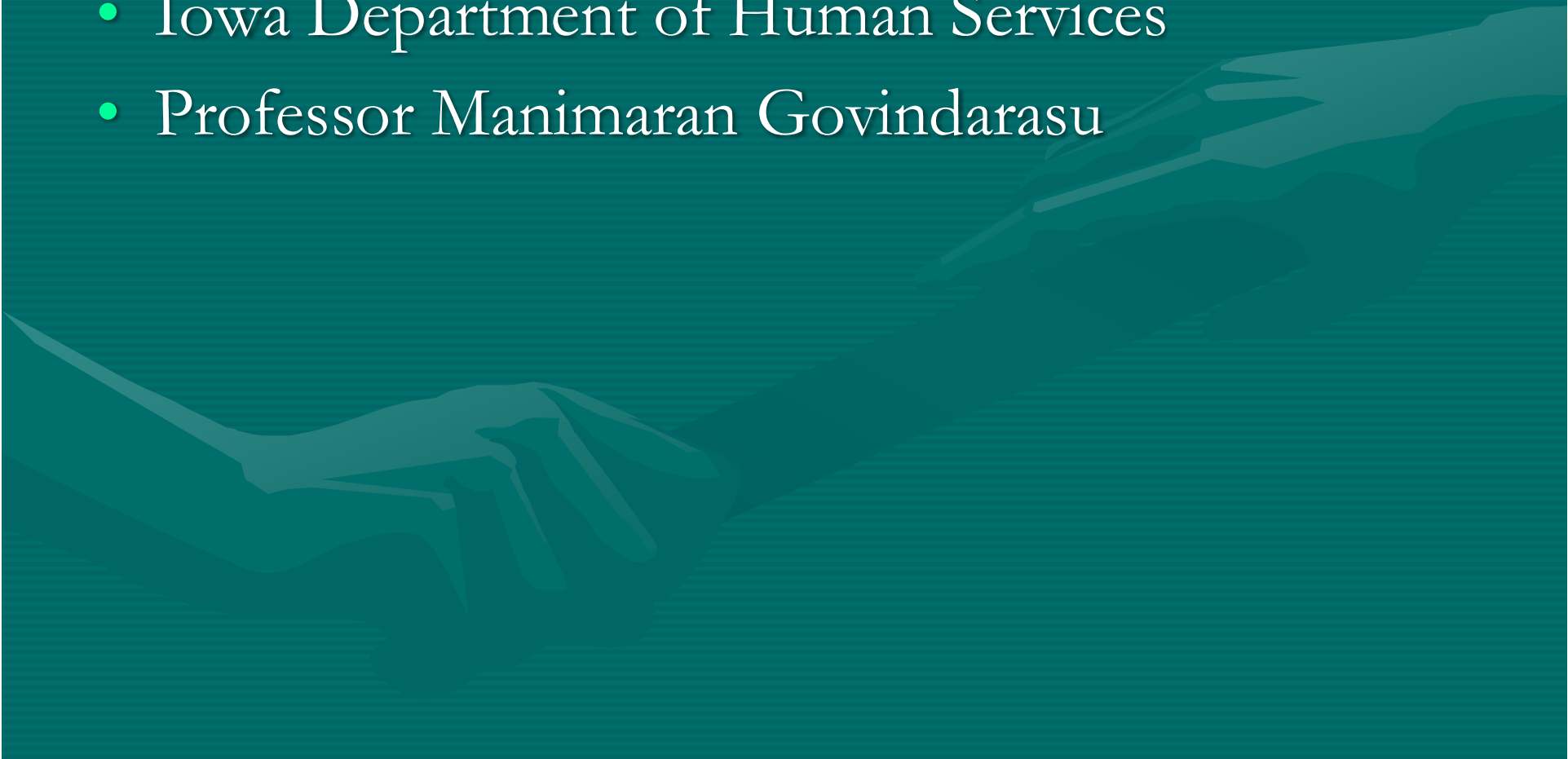
Client: Iowa Department of Human Services

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Acknowledgements

- Marion Kresse
- Iowa Department of Human Services
- Professor Manimaran Govindarasu



Problem Description

- Lack of a centralized source of information on various services offered by aid agencies within Iowa
- Many people do not know that programs exist to offer them aid
- Too many programs for one person to keep track
- Iowa COMPASS database can overwhelm users
- Existing search site is not user friendly

General Approach

- Web application with backend databases
- Management software to add/remove/edit programs
- Search Radius
- Map of results

Definitions

- **ASP** – Active Server Pages
- **BOBBY** - A specification for web sites that are easily accessible by people with disabilities
- **HIPAA** – Health Insurance Portability and Accountability Act*
- **PHP** - A scripting language used for creating web applications
- **SQL** - Scripted Query Language
- **GIS** - Geographical Information System

* Definitions found on Wikipedia.org

Intended Users

- Employees of DHS and Iowa Compass
- Employees of other public assistance services
- People with disabilities in search of services
- Families or friends of people with disabilities
- Administrators of the Iowa COMPASS website

Intended Uses

- To find services for which a person may be eligible
- To locate general services and support programs
- To locate services based on location and distance
- Add/Remove/Edit programs in the database

Functionality

- Anonymous Search Capability
- Extensibility/Maintainability
- Internal Security
- Application Redirection
- Diverse User Allowance
- Program Distance
- Program Location Mapping

Detailed Design



Design Constraints

- Localized Use
- Locally Stored Information
- Users
- Questions Provided
- Time
- Budget
- Handicap Accessible

Design Constraints (cont.)

- Initially implement 20 programs
- Phase Implementation
 - Phase I: Questionnaire forms and Administration application
 - Phase II: Google Map API Implementation

Technology Selections

- Development Technology
 - PHP
 - ASP.NET
 - Selection: ASP.NET
- IDE Software
 - Microsoft Visual Studio .NET 2005
 - Eclipse
 - Selection: Visual Studio .NET 2005

Technology Selections (cont.)

- GIS Software
 - Google Maps API
 - Mapzoom
 - Selection: Google Maps API
- Programming Language
 - Visual C++
 - C#
 - Selection: C#

Testing

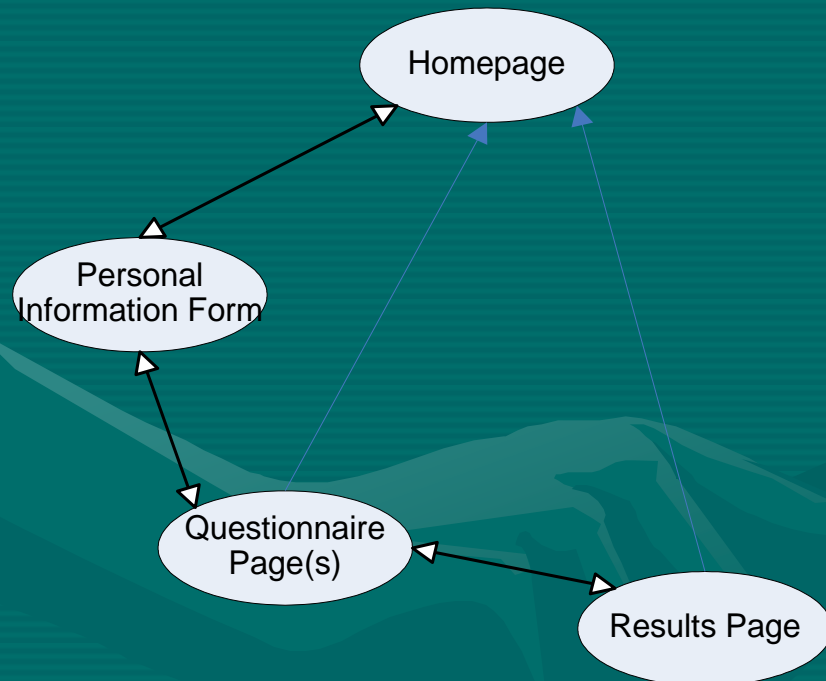
- Unit Testing
 - Black-Box Testing
 - Regression Testing
- Integration Testing
 - Creation of Stubs and Drivers
- System Testing
 - Alpha Testing
 - Beta Testing
 - Site Testing

Phase I

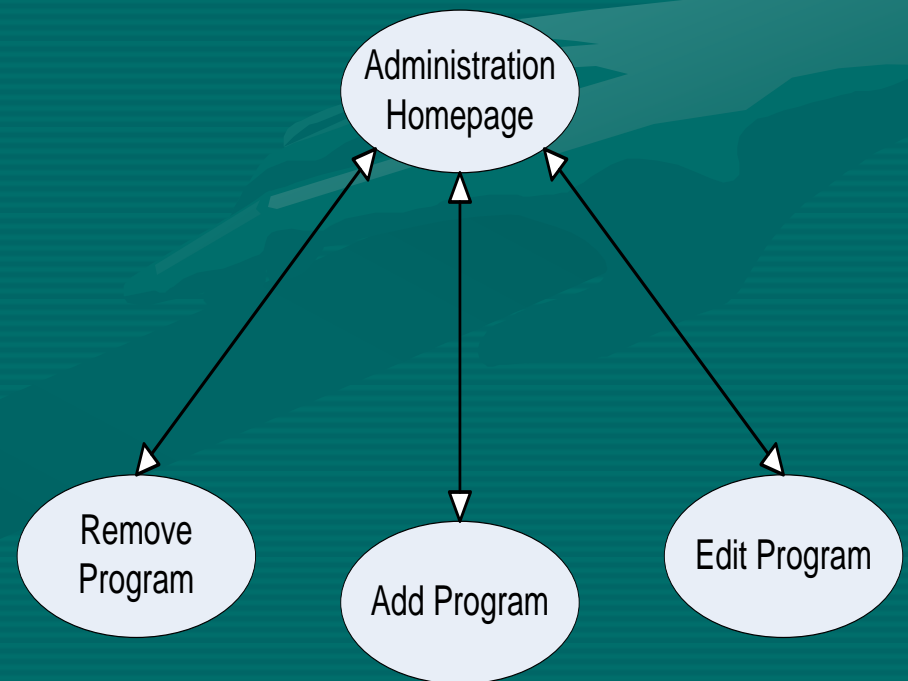


Screen Flow Diagrams

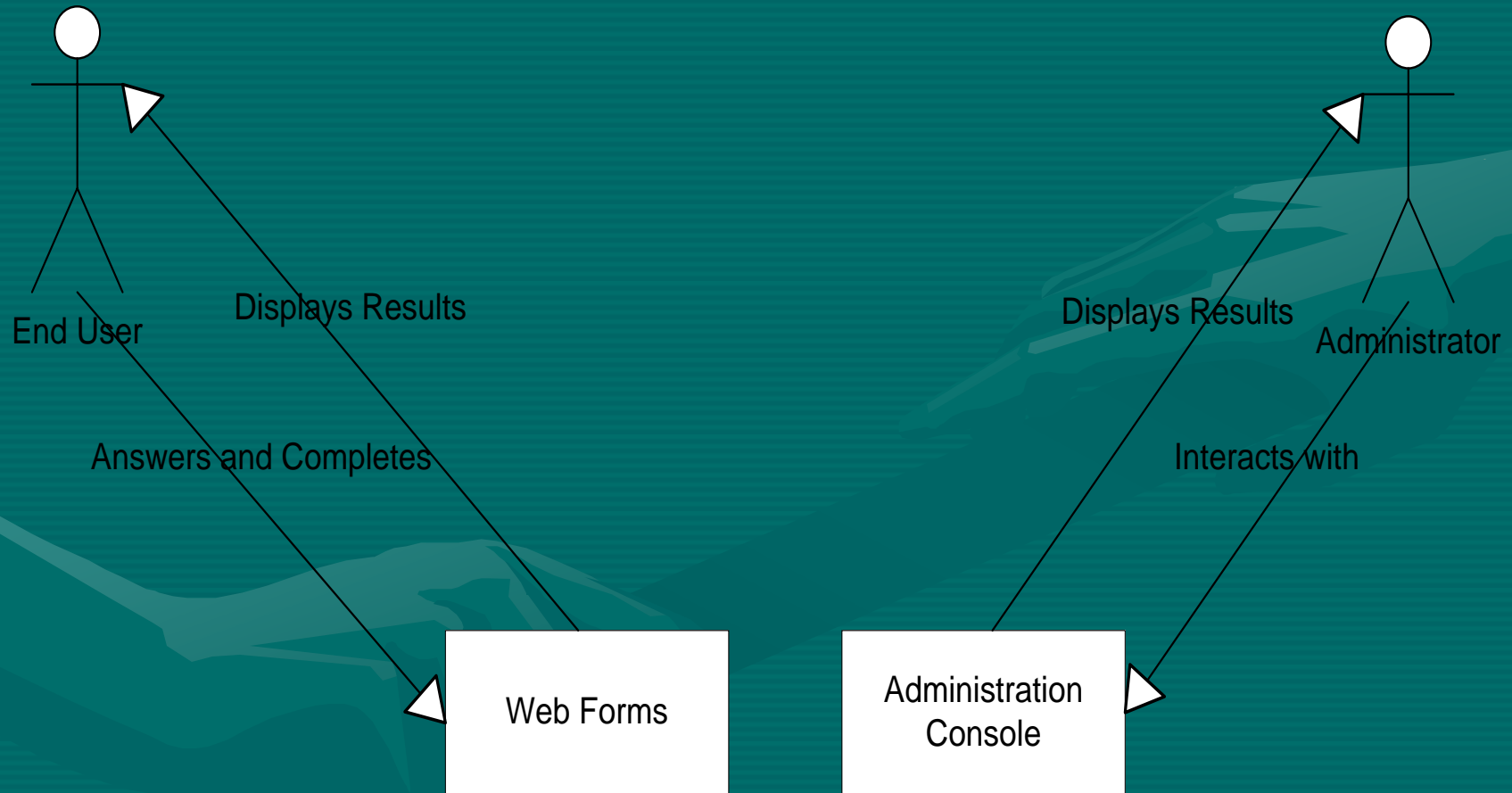
Page flow of end user general use



Page flow for administration console



Top Level Data Interaction



End User Web Forms

- Personal Information Page
 - Income
 - Age
 - Size of household
- Dynamic Questionnaire
 - Based on personal information
 - Formed from the database

Personal Information Page

Personal Information

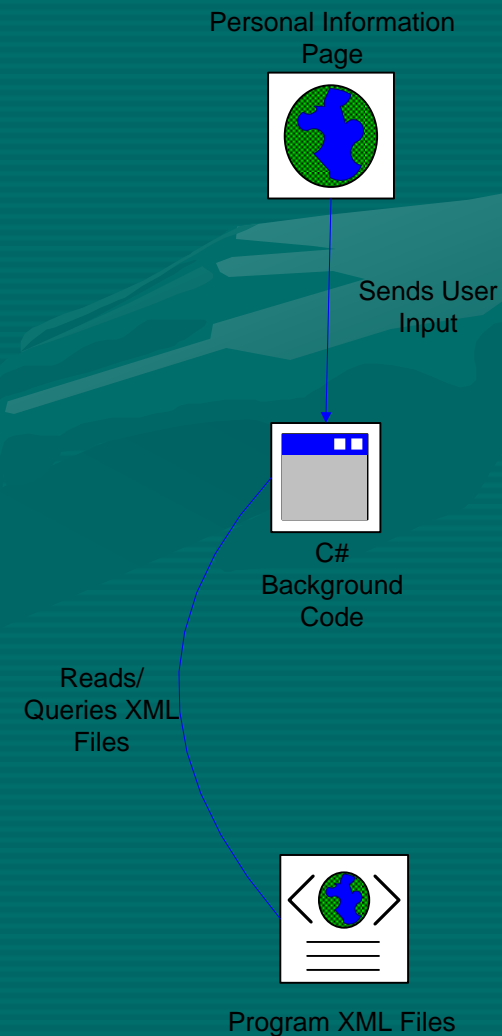
Age of individual applying for aid

Number of people in household

Household's Annual Net Income

Household's Annual Gross Income

[Back to Start Page](#)



Questionnaire Page

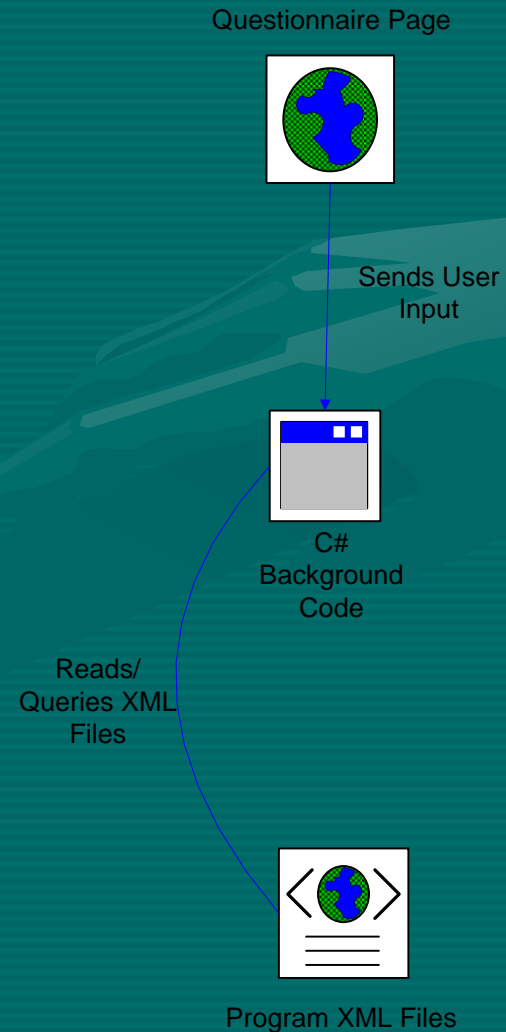
Questionnaire

This is the text for question 1. YES NO

This is the text for question 2. YES NO

This is the text for question 3. YES NO

This is the text for question 4. YES NO



Results Page

Survey Results

*List represents possible eligibility, not guaranteed eligibility

Program Title
Address and Location Information
Contact Name
Contact Phone Number Contact E-mail Address
Brief Program Description:

[Web Site Link](#)

Program Title
Address and Location Information
Contact Name
Contact Phone Number Contact E-mail Address
Brief Program Description:

[Web Site Link](#)

Program Title
Address and Location Information
Contact Name
Contact Phone Number Contact E-mail Address
Brief Program Description:

[Web Site Link](#)

XML Database

- Question File
 - Question ID
 - Question Text
 - Counter
- Program File
 - Program ID
 - Program Name
 - Question ID's
 - Personal information tables
 - Solutions

Iowa COMPASS Database

- Program Table
 - Program ID
 - Agency ID
 - Program Name
 - Program Address
 - Program Website
 - Program Contact
- Agency Table
 - Agency ID
 - Agency Name
 - Agency Address
 - Agency Contact

XML Program List File

- Program ID
- Program Name

Program Master Table

- Program ID
- Program Name
- Agency ID
- Program Address
- Program Website
- ProgramContact

Agency Master Table

- AgencyID
- AgencyName
- AgencyAddress
- AgencyWebsite
- AgencyContact

XML Program File

- Program ID
- Program Name
- Question List
 - Question ID
- - Personal Information Tables
 - Table ID
 - Min Age
 - Max Age
 - Income Table
- Solutions
 - Personal Information Table ID
 - [qSa c
 - U^ . a } AÖ
 - [qSa c
 - U^ . a } AÖ

XML Question File

- -QuestionID
- -Question Text
- -Counter

Administration Application

Administrator Home

This page allows the administrator to add or remove programs as well as to edit them.
Below is a list of all functions the admin has access to. Click the link to perform the specified task.

Admin Functions:

[Add Program](#) [Remove Program](#) [Edit Program](#)

Administration Functions

- Add Program
 - Enter valid program id and name
 - Create new personal information tables
 - Select from a list of questions
 - Create new questions
 - Build solutions

Add Program

Please type the Program ID:

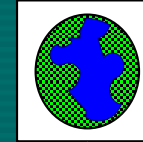
Add Program

Search for Program ID

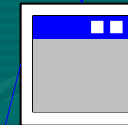
[OutputLabel]

[Return to Admin Home](#)

Add Program

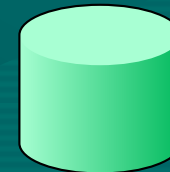


Sends User
Input



C#
Background
Code

Validates
Program ID



Iowa
COMPASS
Database

Create new
XML file for the
new program



Program XML Files

Personal Information Page

Enter Name
of Table

Minimum Age

Maximum Age

Number of
People in
Household

Maximum Household
Income

1

2

3

4

5

6

7

8

9

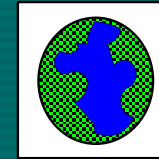
10

Each Additional

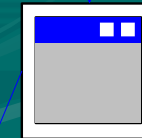
CLEAR FORM

SAVE FORM

Personal Information
Page



Sends User
Input



C#
Background
Code

Creates Table
in XML File



Program XML File

Add Questions to Program

* All question must be in YES/NO format.

Select Existing Question

Add Question

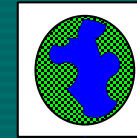
OR

Create New Question

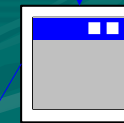
Save and Add Question

Clear Text

Add Questions Page



Sends User Input



C#
Background
Code

Gets current
questions &
write new
questions



Questions XML
File



Program XML File

Adds
questions to
program

Solution Builder

Q1: This is the text of the first question.

Q2: This is the text of the second question.

...

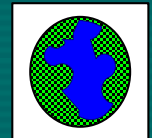
Qn: This is the text of the last question.

Select the age and income table to use:

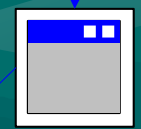
Save Solution

New Solution

Solution Builder Page



Sends User Input



C#
Background
Code

Adds solution
to program



Program XML File

Administration Functions (cont)

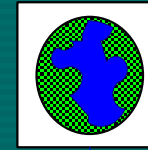
- Remove Program
 - Select from a list of existing programs
 - Delete program XML file
 - Decrement question counters
 - Remove questions (if needed)

Remove Program from Database

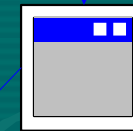
Select a Program to Remove

Program 1 Name, Program ID
Program 2 Name, Program ID

Remove Program Page



Sends User Input



C#
Background
Code

Gets program
data and
deletes file



Program XML File

Decrements
counter and
removes
question if
counter = 0



Questions XML
File

Administration Functions (cont)

- Edit Program
 - Select from a list of existing programs
 - Add/remove/edit personal information tables
 - Add/remove questions
 - Add/remove/edit solutions

Edit Program Information

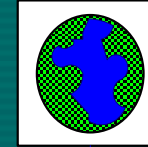
Select a Program to Edit:

Program Name 1 , Program ID
Program Name 2 , Program ID
Program Name 3 , Program ID

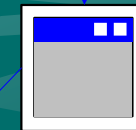
Edit Program

[Return to Admin Home](#)

Edit Program Page



Sends User
Input



C#
Background
Code

Get all
]![*!æ ÁÖqÁ
and names



Program XML File

Edit Program Information

Remove/Modify Personal Information Table:

Table 1
Table 2
Table 3

Remove Table

Load Table

Modify/Create New Personal Information Table:

Enter Name

of Table

Minimum Age

Maximum Age

Number of Persons
Household

Maximum
Income

1

2

3

4

5

6

7

8

9

10

Each Additional Person:

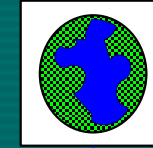
CLEAR TABLE

SAVE TABLE

Previous

Next

Edit Personal Information Tables Page



Sends User
Input



C#
Background
Code

Get current
tables, create
new tables,
modify
existing tables



Program XML File

Edit Program Information

Remove Question:

Q1: Question 1 text.
Q2: Question 2 text.
Q3: Question 3 text.

Remove Question

Insert New Question

Select Existing Question

This is the question 1 text.
This is the question 2 text.
This is the question 3 text.

Add Question

OR

Create New Question

[Empty text area for creating a new question]

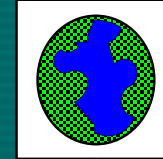
Save and Add Question

ClearText

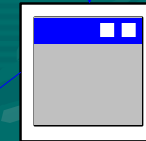
Previous

Next

Edit Program Questions Page



Sends User Input



C#
Background
Code

Get all
for program

Get questions,
delete
questions,
update
counters, & add
new questions



Program XML File



Questions XML
File

Edit Program Information

Select a Solution to Load:

Solution Builder

Q1: This is the text of the first question.

Q2: This is the text of the second question.

.

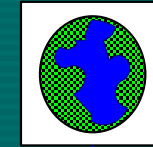
.

.

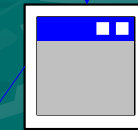
Qn: This is the text of the last question.

Select the age and income table to use:

Edit Solutions
Page



Sends User
Input



C#
Background
Code

Get current
solutions &
add, modify,
delete
solutions

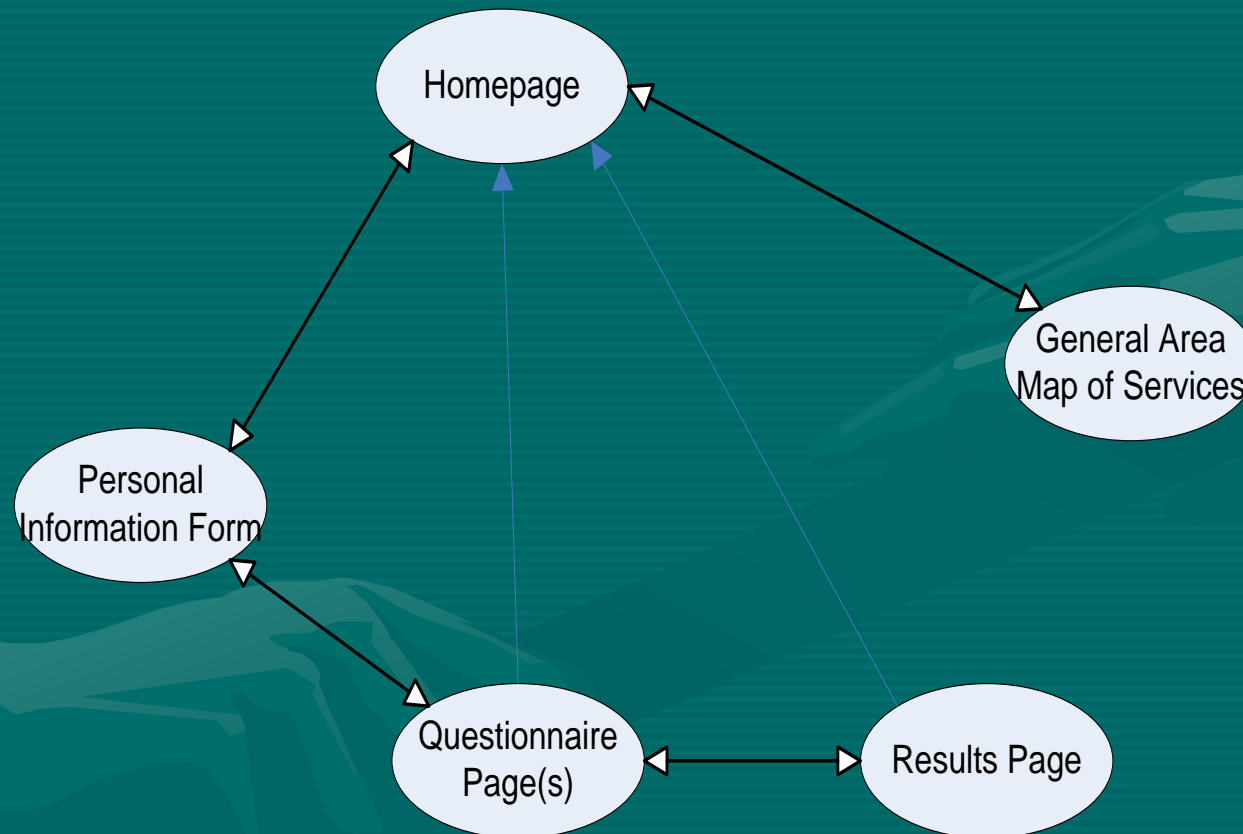


Program XML File

Phase II



Phase II End User Page Flow



Additional Features

- Ability to Search within Radius
 - Link from homepage
- Map of Returned Results
 - Addition to results page
- Distance Calculation
 - Pythagorean Theorem
 - SQL table of zip codes/latitude and longitude
- Google Map API

Work Accomplished

- Initial GUI for End User/Administrator
- XML Database Files
 - Program File
 - Question File
 - Program List File
- Page Linkage and Data Passing
- XML Parsing Started

Future Work

- Modify XML Files via Administrator Interface
- End User Queries
- Finish XML Parsing
- Interface with Iowa COMPASS Database
- Testing
- Documentation

Questions

