Blaise Code Generator
From implementing standards to coding automation

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Overview

- Context
  - Application Development
  - Standards
- Code Builder
- Questionnaire Development Tool (QDT)
- Blaise Code Generator (BCG)
Application Development

- Multi-divisional project
  - Subject matter
  - Operations
  - System development
Application Development

- Ongoing efforts to improve practices
  - Best practices
  - Module/Block oriented development
  - Quality assurance review of specifications
  - Many changes over the years, leading to...
Standards

- Operations
  - Field naming convention (ABC_Q02, XYZ_R01, etc.)
  - Screen presentation rules (Font, Size, Color, ...)
  - Standard blocks and Interviewer Instructions

- Development
  - Block specification rules
  - Blaise code standards
Our Opportunity

- **Problem**: it took a lot of time to get static text from the specification to the code

- **Desire**: take less time!
Code Builder

- **Design**
  - Manipula Scripts

- **Details**
  - Preparation
  - Formatting

- **When to use it**
  - During initial programming
  - One time only
Questionnaire Development Tool (QDT)

- Consolidate, manage and standardize development of questionnaire
  - Questionnaire specification repository
  - Monitor progress of development
  - Create structured questionnaire specifications
  - Validation of content specifications
  - Dissemination Report
  - Link to other systems, etc.
Corporate challenges

- Do more with less
- Deliver product more rapidly
- Increase efficiencies
Blaise Code Generator (BCG)

- Take advantage of the QDT specification format
- Improve efficiency and quality of code
  - Build a block of code in 1-2 seconds
  - 75-90% of the block level code
  - Creates help files
- Improve block development process
**BCG – User Interface**

![Blaise Code Generator (3.0.0.0)](image)

<table>
<thead>
<tr>
<th>Acronym</th>
<th>English Name</th>
<th>French Name</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC</td>
<td>Access to health care services</td>
<td>Accès aux services de santé</td>
<td>1</td>
</tr>
<tr>
<td>ADL</td>
<td>Activities of Daily Living</td>
<td>Activités de la vie quotidienne</td>
<td>1</td>
</tr>
<tr>
<td>ADM</td>
<td>Administration information</td>
<td>Renseignements administratifs</td>
<td>1</td>
</tr>
<tr>
<td>ALC</td>
<td>Alcohol use</td>
<td>Consommation d'alcool</td>
<td>1</td>
</tr>
<tr>
<td>ALD</td>
<td>Alcohol use - Dependence</td>
<td>Consommation d'alcool - Dépendance</td>
<td>1</td>
</tr>
<tr>
<td>ALN</td>
<td>Alcohol use - Form</td>
<td>Consommation d'alcool - Formalité</td>
<td>1</td>
</tr>
</tbody>
</table>
**Element Type:** Respondent - Mark all

**Element ID:** ACC_Q40A

**Before Instructions**

**English:**

**Add:**

**Respondent Question Text**

**English:**

Who did you contact when you needed health information or advice
^DT_YourFamily?

**After Instructions**

**English:**

**Add:** Read categories to respondent. Mark all that apply.
**BCG – Blaise Fields Definition**

<table>
<thead>
<tr>
<th>Fields</th>
<th>Description</th>
</tr>
</thead>
</table>
| ACC_Q40A | "ACC_Q40A@|\^piHeaderE
@\/@BWho did you contact when you needed health information or advice ^DT_YourFamily?
@\/@S@INTERVIEWER@U: Read categories to respondent. Mark all that apply.@S"

"ACC_Q40A@|\^piHeaderF
@\/@BQui avez-vous contacté lorsque vous avez eu besoin de renseignements ou de conseils en matière de santé ^DT_VotreFamille?
@\/@S@INTERVIEWEUR@U : Lisez les catégories au répondant. Choisissez toutes les réponses appropriées@S"

... |

: SET OF tACC_Q40A
QDT – Format Library (Type)
BCG – Blaise Types Definition

```plaintext
TYPE

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>V01</td>
<td>1</td>
<td>&quot;@BDoctor’s office&quot;</td>
</tr>
<tr>
<td>V02</td>
<td>2</td>
<td>&quot;@BCommunity health centre / CLSC&quot;</td>
</tr>
<tr>
<td>V03</td>
<td>3</td>
<td>&quot;@BWalk-in clinic&quot;</td>
</tr>
<tr>
<td>V04</td>
<td>4</td>
<td>&quot;@BClinique sans rendez-vous&quot;</td>
</tr>
<tr>
<td>V05</td>
<td>5</td>
<td>&quot;@BHospital emergency room&quot;</td>
</tr>
<tr>
<td>V06</td>
<td>6</td>
<td>&quot;@BOther hospital service&quot;</td>
</tr>
<tr>
<td>V07</td>
<td>7</td>
<td>&quot;@BAutre service d’un hôpital&quot;</td>
</tr>
</tbody>
</table>
```
QDT – Dynamic Text

The image shows a screenshot of a software interface titled "Questionnaire Development Tool". The interface is used for creating dynamic text elements in a questionnaire. The specific element displayed is labeled "Dynamic text" and includes conditions and corresponding dynamic text values.

- **Element Type:** Dynamic text
- **Element ID:** ACC_D40A
- **Ex Name:**
- **Order:** 20

### Dynamic Text

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Condition</th>
<th>DT_Name</th>
<th>Dynamic Text value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>one person household</td>
<td>DT_YOURFAMILY</td>
<td>null</td>
</tr>
<tr>
<td>3</td>
<td>Otherwise</td>
<td>DT_YOURFAMILY</td>
<td>for yourself or a family member</td>
</tr>
</tbody>
</table>

The interface also includes a header and footer with links and navigation options.
BCG – Blaise Dynamic Texts

AUXFIELDS

DT_YOURFAMILY : STRING[100]
DT_VOTREFAMILLE : STRING[100]

RULES

IF { one person household } THEN
  DT_YOURFAMILY := EMPTY
  DT_VOTREFAMILLE := EMPTY
ELSE
  DT_YOURFAMILY := 'for yourself or a family member'
  DT_VOTREFAMILLE := 'pour vous-même ou un membre de votre famille'
ENDIF
PARAMETERS

IMPORT piHMemNum : STRING {Number Of Household Member}

[...]

AUXFIELDS

DT_YOURFAMILY : STRING[100]
DT_VOTREFAMILLE : STRING[100]

RULES

IF piHMemNum <= 1 THEN
    DT_YOURFAMILY := EMPTY
    DT_VOTREFAMILLE := EMPTY
ELSE
    DT_YOURFAMILY := 'for yourself or a family member'
    DT_VOTREFAMILLE := 'pour vous-même ou un membre de votre famille'
ENDIF
The frequency in ALC_Q3 is greater than the frequency in ALC_Q2. Please return and correct.

Trigger hard edit if

(ALC_Q3 = 3 and ALC_Q2 = 1)
BCG – Blaise Edits

```
ALC_R1
ALC_Q1
ALC_Q2
ALC_Q3

{IF (ALC_Q3 = 3 and ALC_Q2 = 1) THEN}

CHECK ERROR
"@H@B@RALC_E3@/0/The frequency in ALC_Q3 is greater than the frequency in ALC_Q2. Please return and correct."
"@H@B@RALC_E3@/0/La fréquence à ALC_Q3 est plus grande que la fréquence à ALC_Q2. S.V.P. retournez et corrigez."

{ENDIF}
```
Modified – Blaise Edits

```
ALC_R1
ALC_Q1
ALC_Q2
ALC_Q3

IF (ALC_Q3 = V03 AND ALC_Q2 = V01) THEN

CHECK ERROR
"@H@B@R/L ALC_E30/0/The frequency in ALC_Q3 is greater than the frequency in ALC_Q2. Please return and correct."
"@H@B@R/L ALC_E30/0/La fréquence à ALC_Q3 est plus grande que la fréquence à ALC_Q2. S.V.P. retournez et corrigez."

ENDIF```

Tag: Marital Status Without Confirmation (De-facto)

Purpose:
marital status is an important variable in tracking the evolution of social attitudes
economic data combined with marital status and family data provides insight into the socio-economic situation of
various types of families

Definition:
living common-law: refers to two people of the opposite sex or the same sex who live together as a couple but
who are not legally married to each other

Procedure:
the full list of categories should be read to the respondent
if a Quebec respondent answers "civil union", code to the "married" category
BCG – Help – HTM Output

MSNC_Q01

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QDT – Conditions (Flow control)

English:

sex = female and age > 15 and (CCC_Q071 = 1 or [CCC_Q072 = 1 and CCC_Q073 = 1])

Yes, go to: CCC_Q075  No, go to: CCC_Q081
BCG – Blaise RULES Output

```r
{ IF sex = female and age > 15 and (CCC_Q071 = 1 or [CCC_Q072 = 1 and CCC_Q073 = 1]) THEN
    CCC_Q075
   ELSE
    CCC_Q081
   ENDIF } 

CCC_Q075
CCC_Q077
```
Conclusion

- **Blaise Code Generator...**
  - Reduces the amount of time programmers spend on static text
  - Increases the accuracy of coding
  - Reduces testing burdens!
Acknowledgement

- Jason Gray
  - Technical Design, Development and Support of the Blaise Code Generator (BCG)
Questions?