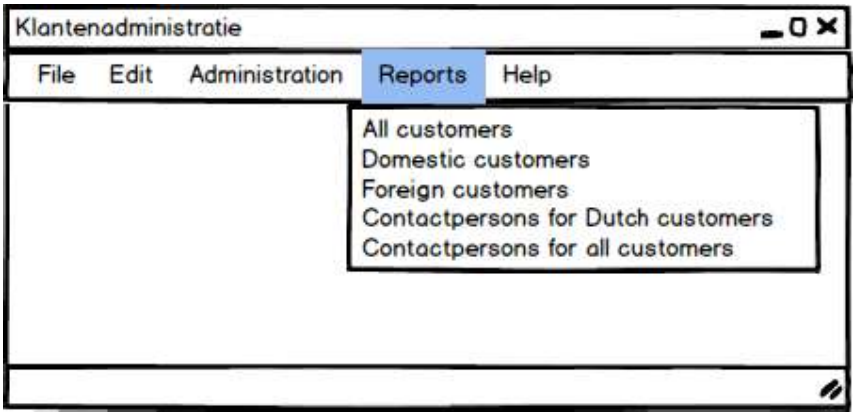
24 CASE STUDY CUSTOMER APPLICATION

Problem description

The functional specifications below have been made for a small customer application at an early stage of application development.

The following is maintained for each customer: Name, Address, City, Country Code, Telephone, and Contact Person. The registration numbers of Dutch customers registered at the chamber of commerce (CoC) are also maintained. Users would like to be able to add, change, and delete data. When a user wants to change and delete data, the customer data present must be shown for verification. Users also want to be able to print the following reports via the menu below:



A sketch of each of these reports is given on the following page. The name of a country is retrieved from a file called Countries that contains the name of a country for each country code. This file is maintained by a different application.

1. Report "All customers"

This report contains all customers and is ordered by company. The country for Dutch customers is not printed.

All customers				
Business name	**Country**	**Telephone**	**CoC-nr**	**Contact person**
AeroDat	België	00-32-2-3456789		du Spiré
BankBetaal		030-3141592	12345	Westerhof
ImportRossia	Rusland	00-7-812-4567890		Ivanets
LuchtBelga	België	België		VandenBerghe
SehFern AG	Duitsland	00-49-30-1234567		Strohmann
TevreeConsult		020-7777777	45678	Doeven

2. Report "Domestic customers"

This report contains all Dutch customers ordered by company.

Domestic customers				
Business name	**Country**	**Telephone**	**CoC-nr**	**Contact person**
BankBetaal		030-3141592	12345	Westerhof
TevreeConsult		020-7777777	45678	Doeven

3. Report "Foreign customers"

This report contains all foreign customers. The user wants the country to appear at the beginning of each line on the list.

Foreign customers				
Business name	**Country**	**Telephone**	**CoC-nr**	**Contact person**
AeroDat	België	00-32-2-3456789		du Spiré
LuchtBelga	België	België		VandenBerghe
SehFern AG	Duitsland	00-49-30-1234567		Strohmann
ImportRossia	Rusland	00-7-812-4567890		Ivanets

4. Report "Contact persons for Dutch customers"

The report contains the telephone number and the contact person of all Dutch customers.

Contact persons for Dutch customers		
Business name	**Telephone**	**Contact person**
BankBetaal	030-3141592	Westerhof
TevreeConsult	020-7777777	Doeven

5. Report "Contact persons for all customers" (by country)

This report contains the telephone number, the chamber of commerce number, and the contact person of all customers. Customers are grouped by country.

Contact persons for all customers (by country)			
Business name	**Telephone**	**CoC nr.**	**Contact person**
België			
AeroDat	00-32-2-3456789		du Spiré
LuchtBelga	00-32-81-7654		VandenBerghe
Duitsland			
SehFern AG	00-49-30-1234567		Strohmann
Nederland			
BankBetaal	030-3141592	12345	Westerhof
TevreeConsult	020-7777777	45678	Doeven
Rusland			
ImportRussia	00-7-812-4567890		Ivanets

For this application a high level function point analysis has to be carried out.

Discussion

The entity type *Customer* can be maintained in the application and is an internal logical file. *Country* is an FPA table that the application can only read. This is counted as a record type in the FPA tables ELF. Other FPA tables do not exist; therefore, the FPA tables ELF in this case consists of only one record type.

The specifications indicate that customer data can be added, changed, and deleted. This means that three external inputs are identified. The fact that a chamber of commerce number may not be entered for foreign customers does not play a role.

The user has not requested a separate external inquiry. The showing of current customer data for the purpose of verification when a user changes and deletes data is not counted as a separate external inquiry.

Reports 1, 2, and 3 together count as one external output because the following applies in all cases:

- The same object is being reported on (customer)
- The selection criterion is the same (country)
- The processing in order to produce the output products is the same (Except for the selection mechanism, no additional processing is needed.)
- The logical layout of the output products (set of data element types and their structure) is the same; i.e., business name + (country) + telephone + (CoC-nr) + contact person. The parentheses denote optionality. The sequence is not important.

It is irrelevant that a heading is not printed in all cases, as when data is not present or desired; e.g., a CoC-nr or the name of a country, respectively. The headings, after all, have been defined for the output product. Although the sequence of the columns is different in report 3, this is no reason to identify a separate external output. In these three cases, a direct selection takes place via the heading Country.

The same result could also be realized with a fill-in screen in which the user is provided with country code as a selection criterion. The fill-in screen would not be counted as a separate external input. Within FPA, the data to be filled in would be considered control information for the external output, and each piece of data would be included in the analysis as a data element type.

While it is true that report 4 selects the same customers as report 2, the logical layout is different because the set of data element types in report 4 is different: business name + telephone + contact person. Report 4 therefore counts as a separate external output.

Report 5 selects the same customers as report 3. The set of data element types is the same in both reports. However, the structure of the output product is different (the data element types are grouped differently) because the country is presented once each time. Therefore the logical layout is different. As a result, report 5 is identified as a separate external output.

According to the guidelines, no transactional functions are identified at all for the FPA tables ELF, even if external inquiries or external outputs would be present.

Solution

A logical file is counted as low in a high level function point analysis and a transaction as average. This results in the following functional size:

Function	Type	Complexity	Function points	Comments
Customer	ILF	Low	7	
FPA-tables-ELF	ELF	Low	5	
Add customer	EI	Average	4	
Modify customer	EI	Average	4	
Delete customer	EI	Average	4	
Report 1	EO	Average	5	
Report 2	-	-	-	Is the same as report 1 in FPA
Report 3	-	-	-	Is the same as report 1 in FPA
Report 4	EO	Average	5	
Report 5	EO	Average	5	
Menu	-	-	-	Is not counted
TOTAL			39	

The functional size of the application is 39 function points.

References to the standard

3.2.2, 4.20, 6.2.g, 7.2.m, 7.2.n, 8.1, 8.2.w and 8.3.b