

CASE STUDIES ANSWERS

Friendly Collections Inc

www.wecollect.com

Collection Letter

<today_date>

Dear <title> <last_name>,

Our records indicate that you are past due <num_of_days>. If you do not pay within <pay_day>, then we will kindly repo your <color><style_ automobile>.

<greeting>.

Warm Regards,
<repo_man>

Example letter

December 18, 1999

Dear Mr. Harmon,

Our records indicate that you are past due 255 days. If you do not pay within 5 days from the date of this letter, then we will kindly repo your red Ford 150 Truck.

Please have a Merry Christmas and prosperous New Year.

Warm Regards
Rocky Balboa

Questions and other information

- ❖ The number of past due days (num of days) is date of letter minus the due date. Due date derived from the *Payment File*
- ❖ *Pay day* is calculated.
- ❖ *Repo Man* is read from the *Employee File*
- ❖ Title and Last Name are read from the *Customer File*
- ❖ The *greeting* is based upon the date of the letter and an appropriate message from the *Greeting File*.

What are the data elements? **8**, today's date is counted because it is meaningful information.

Is this letter an EO or an EQ, why? EO since pay day is calculated.

How many FTR's? **4** FTR's

Control Inputs

1. How many data elements are on the “Checking Preferences” control Screen?

5 DET’s one for each check box and the OK button.

2. How many data elements are on the “General Preferences” control Screen?

12 total DET’s, 9 check boxes, 2 radio buttons, and the OK

3. The how many control inputs are represented by the menu items to the right?

Looks like it could be 4 control EI’s, but need more information.

4. If the “default” reads values from a control file, then how is “default” treated? It would be treated as an EQ.



Accounting



Checking



Finance Charge



General



Iconbar



Menus

Checking Preferences

Print account names on youcher

Change check date when check is printed

Start with payee field on check

Warn about duplicate check numbers

OK

Cancel

Help

Default

General Preferences

Desktop

Save when closing company

Save current desktop

Don't save the desktop

Time Format

Show portions of an hour as

Decimal (10:20)

Minutes (10:12)

Pressing Enter moves between fields

Automatically place decimal point

Automatically recall last transaction for this name

Warn when editing a transaction

Warn when deleting a transaction or unused list item

Beep when recording a transaction

Never update name information when saving transactions

Turn on all one time messages

Hide Qcards for all windows

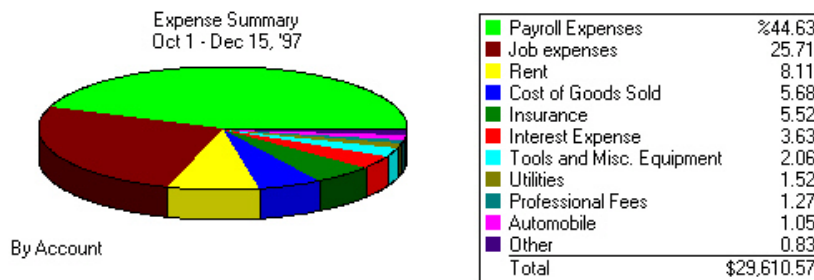
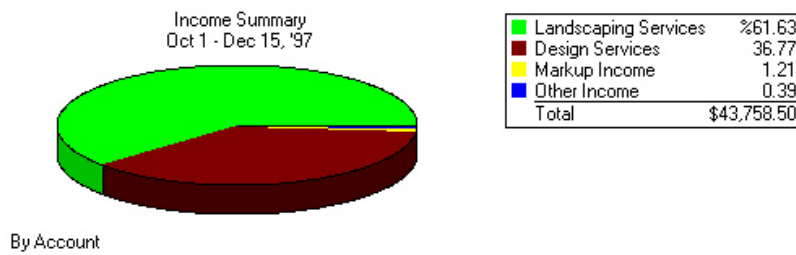
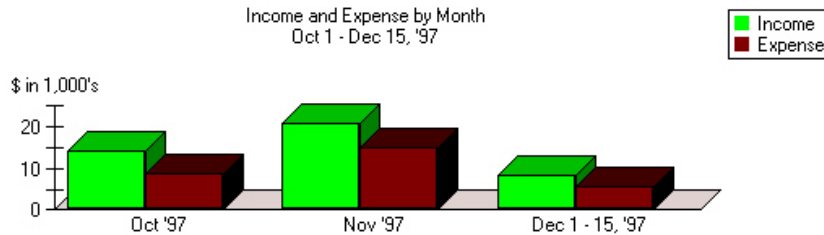
OK

Cancel

Help

Default

Graphical Information



1. What are the external outputs?

The three graphs (bar, and two pie)

2. What are the data elements for each EO?

Date range, item, percentage and total.

3. How are the legends treated? In this case the legends are part of the graphs.

Graphs Part II

There are two data ILF's that contain information needed to produce the graph. There is an additional control file, which alters the way the graph looks.

1. Is there a control EI and control ILF for "graphs"?

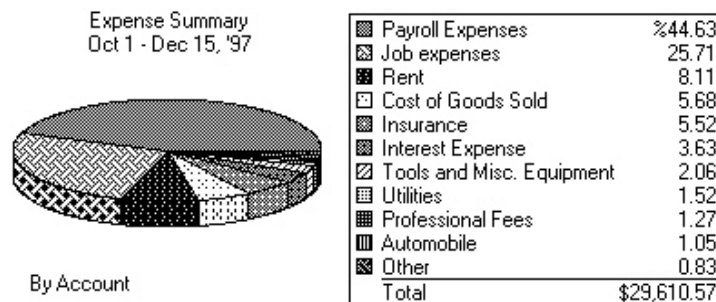
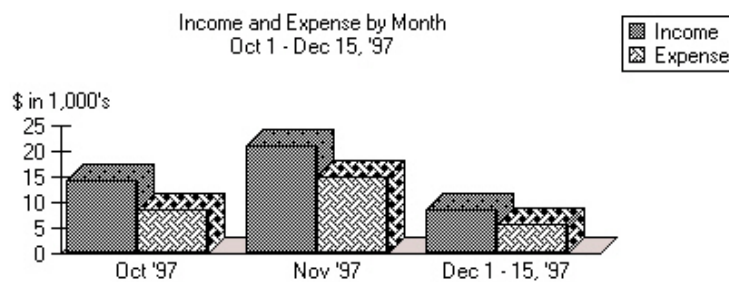
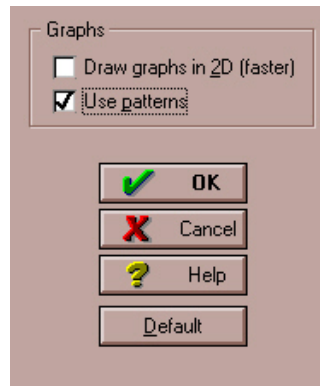
Yes... this will increase the number of FTR's

2. How many total FTR's are referenced for the graphs?

3 Total, the two data and control

3. Does this graph represent another EO?

No, it is the same as before, but now there are more FTR's.



The Weather Application

Release 1.0

The following application was designed to capture temperature and rainfall by city and state. There is only one input screen, one file and one report. Each field on the following input screen can be modified (add, changed or deleted). The add and change functions are different. All previous entries viewed by using the scroll bar. Assume a VAF of 1.0.

The screenshot shows a graphical user interface window titled "Weather Applications". Inside the window, there are five input fields: "City", "State", "Temperature" (with "Degrees" to its right), "Rain Fall" (with "Inches" to its right), and "Date". Below these fields are three buttons: "Add/Change", "Delete", and a scroll bar. The scroll bar has "Previous" and "Next" labels above it and navigation arrows below it.

Weather Storage File				
City	State	Temperature	Rain Fall	Date

Average Temperature and Rain Fall by City and State				
		Temperature	Rain Fall	Date
City 1	State 1			
	<i>Detail Readings for City 1</i>			
	Averages			
City 2	State 2			
	<i>Detail Readings for City2</i>			
	Averages			

Based on the weather application fill in the following table. The exercise is designed to identify the exact number of data elements.

Component (EI,EXTERNAL OUTPUT, EQ, ILF and EIF)	Number of Data Elements?	What are the data elements?

What is the total unadjusted number of function points?

Explanation of Problem

Each EI has 6 data elements (the input field) and the action key. The EQ has 6 data elements also (the fields and the action key). The scroll button represents only one DET.

The ILF has only 5 DET's

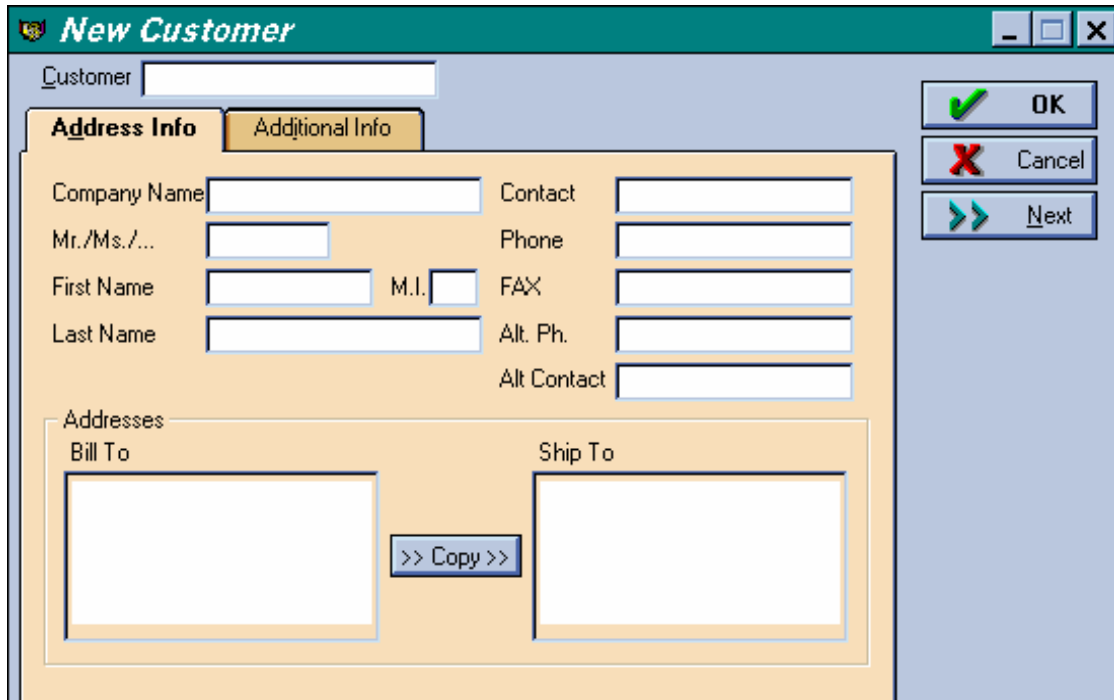
The report has 7 data elements – do not forget average temperature and average rain fall (by the way there is no average date).

All the components are low.

Adding A New Customer

The following two screens are used to add a new customer to an application. The customer is not considered added until both Address information and Additional Information is completed.

The OK and Next buttons both save information to the file.



The screenshot shows a window titled "New Customer" with a standard Windows-style title bar (minimize, maximize, close buttons). The window contains a form with the following elements:

- A search field labeled "Customer" with a text input box.
- Two tabs: "Address Info" (selected) and "Additional Info".
- Form fields for:
 - Company Name
 - Mr./Ms./... (dropdown)
 - First Name
 - Last Name
 - M.I. (Middle Initial)
 - Contact
 - Phone
 - FAX
 - Alt. Ph.
 - Alt Contact
- An "Addresses" section containing two large text input boxes labeled "Bill To" and "Ship To".
- A ">> Copy >>" button positioned between the "Bill To" and "Ship To" boxes.
- Control buttons on the right side:
 - OK (with a green checkmark icon)
 - Cancel (with a red X icon)
 - Next (with a green double arrow icon)

Figure 1

There are four drop down list boxes on the Additional Info tab (Type, Terms, Rep and Tax Item). The first three (Type, Terms and Rep) are read from files that are maintained by the application. Tax item is hard coded. Please ignore the “Define Fields” button.

Figure 2

The drop down lists Type, Rep and Terms are displayed at the end of this case study.

For this part of the application please answer the following questions.

1. How many external inputs are there?

Only one

2. How many total data elements are there on the external input?
23 (if I counted right), do not forget the customer is taxable field! And the action key.

3. What are the data elements?

The fields that data can be input and the action key.

4. In terms of function points what are Type, Terms and Rep?

The are external inquiries

5. In terms of function points how are Type and Terms treated the second time they appear?
The Rep and Terms drop down box are used again when invoices are created.

They are not counted as EQ's, but they would be treated as DET's for the EI's.

New Customer

Customer

Address Info **Additional Info**

Categorizing and Defaults

Type ↓

Terms ↓

Rep ↓

- DHL
- MML

Credit Limit

Resale No.

Custom Fields

New Customer

Customer

Address Info **Additional Info**

Categorizing and Defaults

Type ↓

- Custom
- Off Campus
- On Campus Book Store
- Resaler
- Way Off Campus

Credit Limit

Custom Fields

Enhanced Weather Application

Release 2.0

Release 2.0 is an enhancement to “The Weather Application” Release 1.0. The user wants the ability to save temperature as either Celsius or Fahrenheit. To accomplish this a radio button is added to the input screen, which allows the user to select either Celsius or Fahrenheit. An additional field is added to the file, and an additional field is added to the reports. Assume that the value adjustment factor increases to 1.14.

How many “enhancement” function points does this represent?

What is the baseline function point of release 2.0?

Every item in the application changed. There was a new field on all the EI's, a new field on the EQ, EO and ILF. Hence, the enhancement is the same size as the original baseline.

In the first version there was 3 Low EI's, one Low EQ, one Low EO and one Low ILF (9 + 3 + 4 + 7) or 26 unadjusted function points.

Just multiply 26 x 1.14, which is 29.6 (or 30) adjusted function points.

BikeWare

Release 1.0

BikeWare is a software product designed for competitive bike riders. BikeWare captures and stores a variety of information. BikeWare is for a single rider only. The rider wants to be able to change, add or delete information about a ride or rider. The following information is either entered by the rider or calculated. All **bold** items are stored. The following information is grouped logically into two major groups (ride and rider):

Ride Information

Average Speed

Bike Chill Factor

T = Temperature during the Ride

W = Average Speed

$X = .303439 * \text{sqr}(W) - .0202886 * W$

$\text{Bikechill} = \text{Int}(91.9 - (91.4 - T) * (X + .474266))$

Cadence

Calories Burned = Exponential $((.092037 * \text{Average Speed}) - 4.26) * (\text{Duration of Ride}) * \text{Weight of Rider}$

Date of the Ride

Distance of the Ride

Duration of Ride

Temperature during the Ride

Rider Information

Age (age of rider in years)

Weight (weight of rider)

Sex (sex either male or female)

Graphs

Four separate graphs (see below) can be created by days, by weeks or by months for each item below. A different set of calculations will be used depending of the graph is days, weeks or a months graph. Each graph is available on line or as a hard copy and processing logic is different.

Distance of Ride

Average Speed

Duration of Ride

Calories Burned

For BikeWare determine the following information:

Identify the external inputs, how many data elements and how many files will be referenced?

Item	DETs	FTR's	Rating	Value
EI Ride Add	8	2	Ave	4
EI Ride Change	8	2	Ave	4
EI Ride Add	8	1	Low	3

Item	DETs	FTR's	Rating	Value
EI Rider Add	1	1	Low	3
EI Rider Change	1	1	Low	3
EI Rider Add	1	1	Low	3

How many files type referenced are there for the add, the change and the delete? Is it always the same?

There are two FTR's because the EI needs the other FTR to make a calculation. The second FTR does not need to be referenced to make a deletion.

How many internal logical files are there and what are the data elements?

There are two ILF's. There are 8 in the ride ILF and 3 in the rider ILF. Only those values that are saved are counted as DET's.

How many external outputs? Describe the external outputs also?

There are 24 EO's.

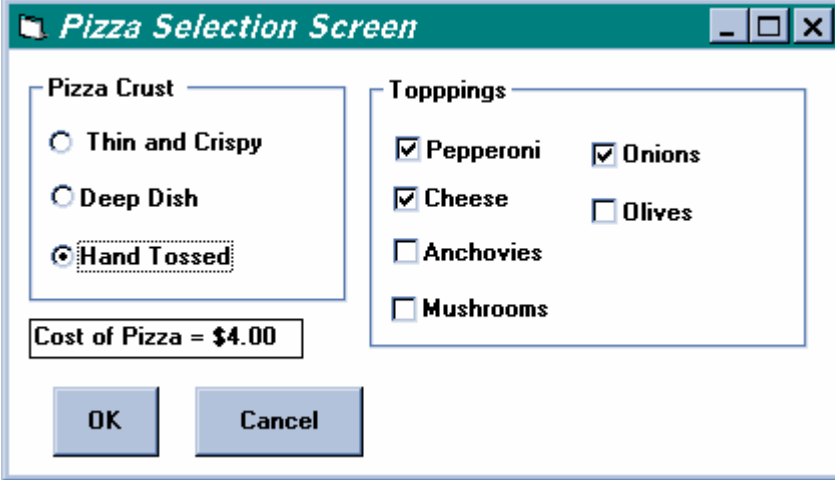
	Days	Weeks	Months	Totals
Distance of Ride	1	1	1	3
Average Speed	1	1	1	3
Duration of Ride	1	1	1	3
Calories Burned	1	1	1	3
Total	4	4	4	12

Since there is online and hardcopy and processing logic is different there are 12 x 2 or 24 total EO's

How many data elements for each external output? **Just two**

Pizza Screen Design

Option 1



The screenshot shows a dialog box titled "Pizza Selection Screen". It contains two main sections: "Pizza Crust" and "Toppings".

Pizza Crust: Three radio buttons are present: "Thin and Crispy", "Deep Dish", and "Hand Tossed". The "Hand Tossed" option is selected and highlighted with a dashed border.

Toppings: A list of six toppings with checkboxes: "Pepperoni" (checked), "Onions" (checked), "Cheese" (checked), "Olives" (unchecked), "Anchovies" (unchecked), and "Mushrooms" (unchecked).

Cost of Pizza: A text box displays "Cost of Pizza = \$4.00".

Buttons: "OK" and "Cancel" buttons are located at the bottom of the dialog.

Toppings are read from another application (kitchen application). If the topping is not available it is not displayed.

The cost of the Pizza is calculated automatically.

Figure 3

When the OK button is clicked the Toppings, Pizza Crust Type and Cost of Pizza are saved.

Option 2

The Items in the drop down box are hard code – not read from a file.

Available Toppings are read from another application (kitchen application).

When a Topping is selected from Available Toppings it is copied to Selected Toppings

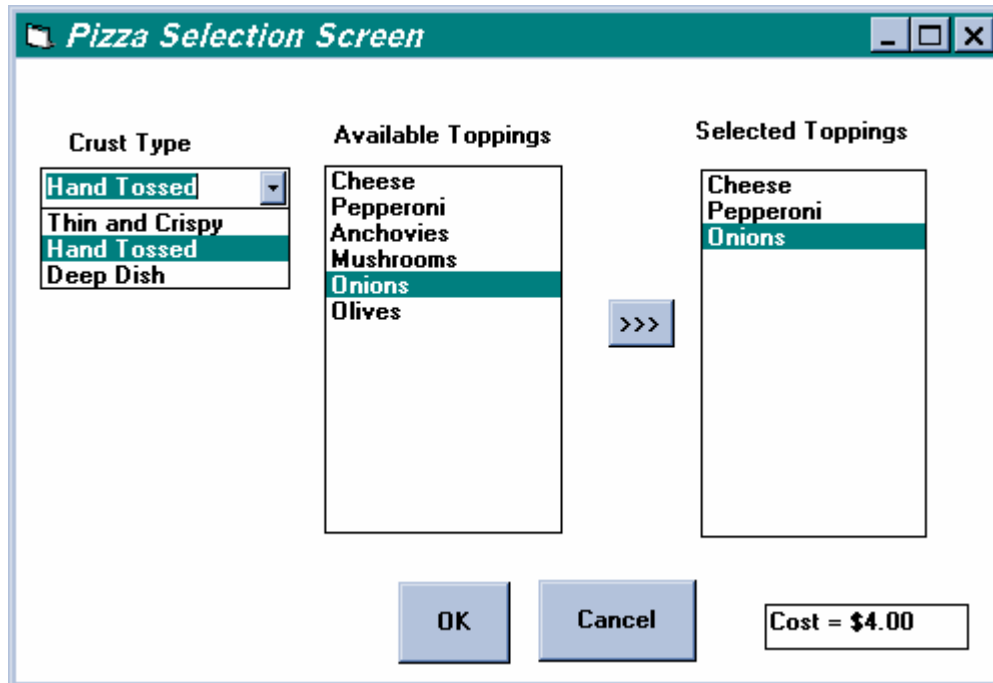


Figure 4

The Cost of the Pizza is automatically calculated.

When the OK button is clicked the Selected Toppings, Pizza Crust Type and Cost of Pizza are the saved.

What are the differences if any between Option 1 and Option 2? Please fill in the table below.

<i>Option 1</i>		<i>Option 2</i>	
Component	Data Elements	Component	Data Elements
Toppings (EQ)	1 and very recursive	Same	
EIF (from kitchen app)	1 perhaps more but it is still a low	Same	
EI Add	4 DET's	Same	

Problem Explained.

The number of components and DETs are exactly the same in both options. An EI can have derived data.

www.PIZZA CLUB.COM

Part 1

WWW.PizzaClub allows customers to order pizza via the Internet. The following is only one screen of many screens.

1. Once the customer has accessed www.PizzaClub.Com they fill out this screen.
2. When the customer clicks on the form the information is saved to a file.
3. If any of the fields are not filled out (populated) the customer receives an error message telling them “All fields must be populated”.
4. What are the data elements? **The fields, the error message and action key (9)**
5. How many unadjusted function points does this screen and one file represent. **10 (low EI and assumed low ILF).**

Netscape - [Clubs Of America -- Membership Order Form]

File Edit View Go Bookmarks Options Directory Window Help

Back Forward Home Edit Reload Images Open Print Find Stop

Go to:

Where do you want you Pizza Delivered?

Name

Address

City State Zip Code

Phone Number

Email Address

If you prefer you can Call 1-800-MAMA-MIA

Figure 5

Part 2

Www.PizzaClub.com is going to be enhanced. Instead of allowing the customer to type city and state, they will input the zip code number. The application will search the zip code file and then automatically populate City and State. The customer can override the populated fields. The zip code file is maintained by another application.

How many unadjusted function points does this enhancement represent?

What are the new components?

What data elements are impacted?

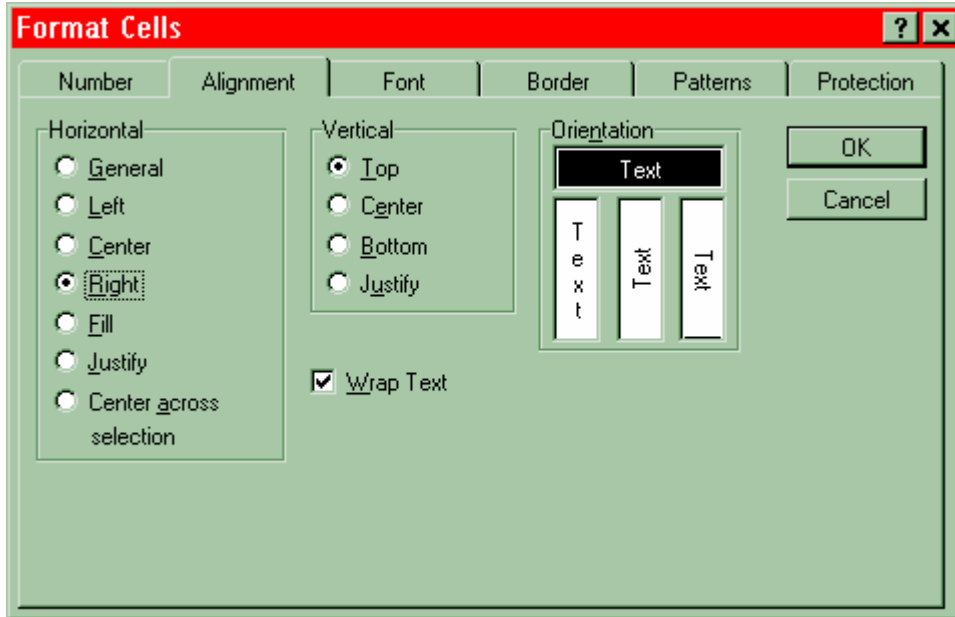
In the example there are two new components an EQ and an EIF. There is no impact to the existing application. The process of saving information to a file which we counted before remains exactly the same. There is now an transaction that proceeds the EI that we count. And this new EQ transaction uses one EIF.

It is important to note that the user can intervene prior to the EI. That means the EQ transaction stopped. If there was no user intervention. The EI would have two FTR's and the query transaction would be part of the EI and not a separate transaction.

Control Information

What are the data elements in the following control screen (alignment)?

5 data elements



Control Screen

Figure 6 -

How many data elements are there in the following “Data Entry Preferences” control screen? **9** 6 DET’s for the check boxes + 2 different radio buttons selections + 1 for the action key.

If this control screen updates one internal logical file, then how many unadjusted function points does this represent? **10** (one low EI and one low ILF --- 3 plus 7)

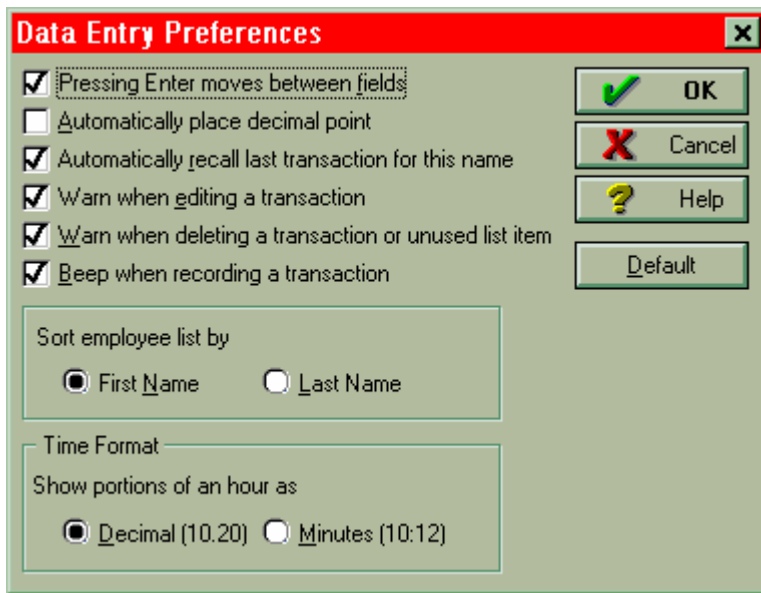


Figure 7