

## **Analysis Scenario**

You have one hour in total to complete this scenario based test. The recommended breakdown is:

- Read Case Study (page 1) : approx 5 minutes
- Question 1 (page 2) : approx 10 minutes
- Question 2 (page 3): approx 30 minutes
- Question 3 (page 4) : approx 15 minutes

The aim of this exercise is to provide you with an opportunity to illustrate how you would approach an analysis task. There is no 'correct' or 'incorrect' answer, and the rationale behind your decision is at least as important as the actual decision itself, so explain your reasoning where possible. You should spend one hour in total on this task. Presentation isn't important, rough sketches are all that is expected in the time provided.

Please ensure you make an attempt to answer each question.

### **Case study**

approx 5 minutes

ABC Ltd is a parts distributor. At present, the company has a basic internal system to handle orders. Customers place an order by phone and a Customer Services Agent keys in the order as it is placed. Periodically Supplier Managers request the load of new parts and updated prices to the system. A Supplier Manager can also authorise a percentage discount for high value customers who have negotiated special terms.

**Business Objective:** ABC Ltd is expanding rapidly and needs to supply more customers with a wider range of parts. The directors also want to introduce specialist products.

**Project:** The directors have agreed to fund development of a new web application. The purpose of the new application is to:

- Allow customers to place orders for standard parts online. This will free up Customer Services Agents to deal with specialist orders, which will also be captured using the new application.
- Introduce a universal discount scheme for all customers. Although, where special terms have already been agreed by a Supplier Manager, the agreed Percentage Discount will continue to apply.

- Allow Supplier Managers to manage supplier details, parts and unit costs directly using the application. This information is currently held on a shared spreadsheet.

***Whizzy Web Inc. has been selected to design and build the new application for ABC Ltd.***

***Assume you are a Whizzy Web analyst and are joining this in-flight project. Another analyst working on the project provides you with the information on the attached pages.***

***Using the information available to you, please complete questions 1, 2 and 3.***

**Question 1 – Logic**

approx 10 minutes

The new application will automatically calculate any discount to apply to a Customer Order using the logic defined in Figure 1.

Test cases will be used to verify discount calculation for each line item in an order. The expected result for each line item in the tables below is required.

Fill in columns A and B as follows:

- Column A: Describe the path though Figure 1 to determine each line item discount %.  
Each element of the diagram is numbered, so describe the path using a list of these reference numbers.
- Column B: Determine the expected discount percentage to apply to each line item.

Note: calculations are NOT required.

TEST CASE 1					
A Customer does not have special terms, Percentage Discount is 0%					
Line item	Unit value	Order quantity	Total	A	B
Example	€100	250	€25,000	1, 3, 4, 6, 8, 12	0%
Part AC1245	€10	1100	€11,000	1, 3, 4, 5, 12	2%
Part ZA7688	€1000	20	€20,000	1, 3, 9, 10, 12	5%
Part DE9412	€200	100	€20,000	1, 3, 4, 6, 8, 12	0%

TEST CASE 2					
A Customer has special terms for a Percentage Discount of 10%					
Line item	Unit value	Order quantity	Total	A	B
Part ZA7688	€1000	20	€20,000	1, 2, 12	10%



## Question 2 – Modelling

approx 30 minutes

A class data model for the current application is shown in Figure 2.

An extract of representative data from the Supplier Managers' spreadsheet is shown in Figure 3.

Use **Object Oriented modelling techniques** to model information held in the Supplier Managers' spreadsheet to enhance the existing model.

Your model must support the current application and Supplier Manager information and include:

- New and modified classes, including important attributes
- New and modified associations and their multiplicity

As you model, consider reuse, abstraction, encapsulation, inheritance and polymorphism.

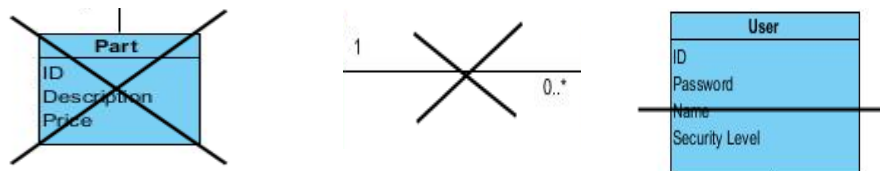
If you have a question which is not answered in this document, make an assumption and note your assumption to support your model.

Key information is described by columns A to G, with supplementary information in the remaining columns.

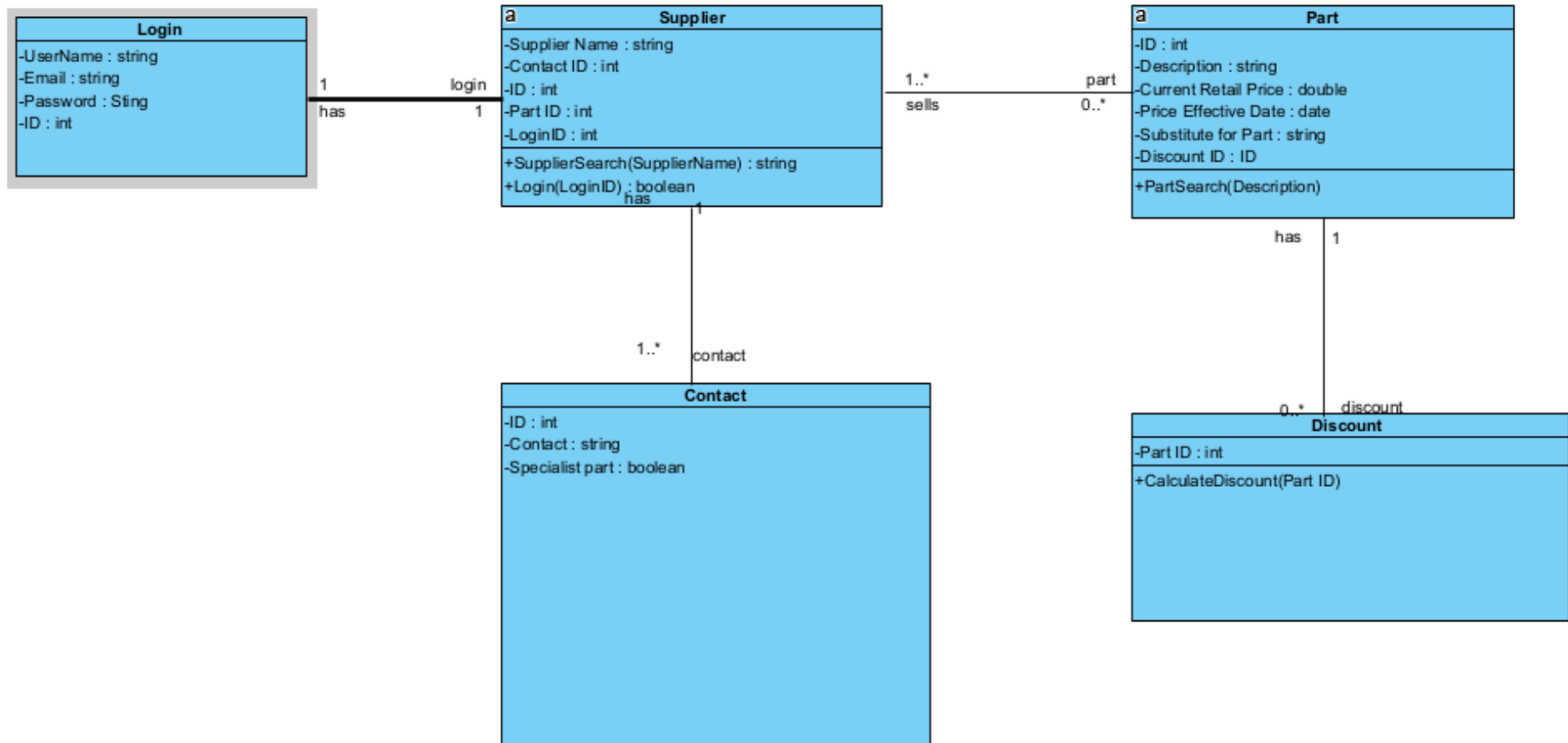
### Notes:

A number of copies of Figure 2 are provided. To save time you may draw your answer on this model, or if you wish, you may draw the model from scratch.

If you use the diagram provided, you may wish to remove some element of it. To do this, clearly mark the element by crossing it out, as shown in the examples below.







### Question 3 – User Interface (UI)

approx 15 minutes

Supplier Managers will use the web application to manage supplier parts.

Sketch user interface mock-ups for the requirements below.

#### **Requirements:**

The fields on each page mock-up must be consistent with classes in the model you produced for question 2. It is not necessary to include every class attribute, but do include significant attributes.

1. *Supplier search:*

Search for an existing supplier using a partial supplier name or unique supplier identifier, with a filter for active/all suppliers.

Select a supplier from the results to view *Supplier Information*.

2. *Supplier Information:*

View / modify supplier information

View the list of supplier parts, filter by Part ID and allow selection of a Part.

Initiate add of a new supplier part.

If required, you may annotate your sketches using bullet points to clarify your assumptions.

Additional information:

- Describe any parameters which will be passed between pages.
- Populate each page with some data for illustration purposes.
- In addition to the requirements above, include other standard functionality you would expect to see on the page (e.g. add). In this case, do not mock up additional pages, just briefly describe the function and any parameters passed to it - there is no need for extra sketches.



Example of a User Interface sketch:

**Login**

What is your email address?

Email Address

Do you have a password?

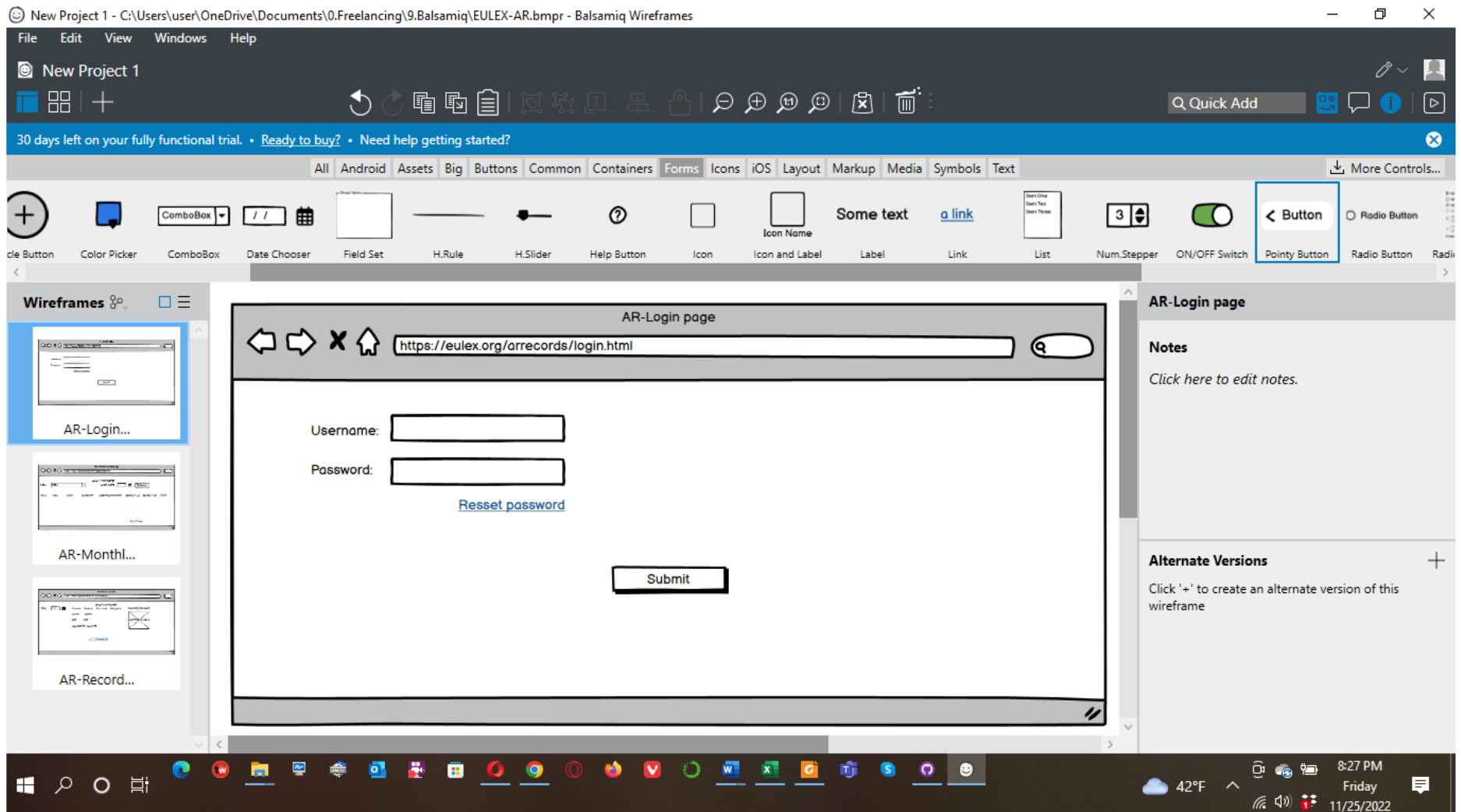
☒ No, I am a new claimant

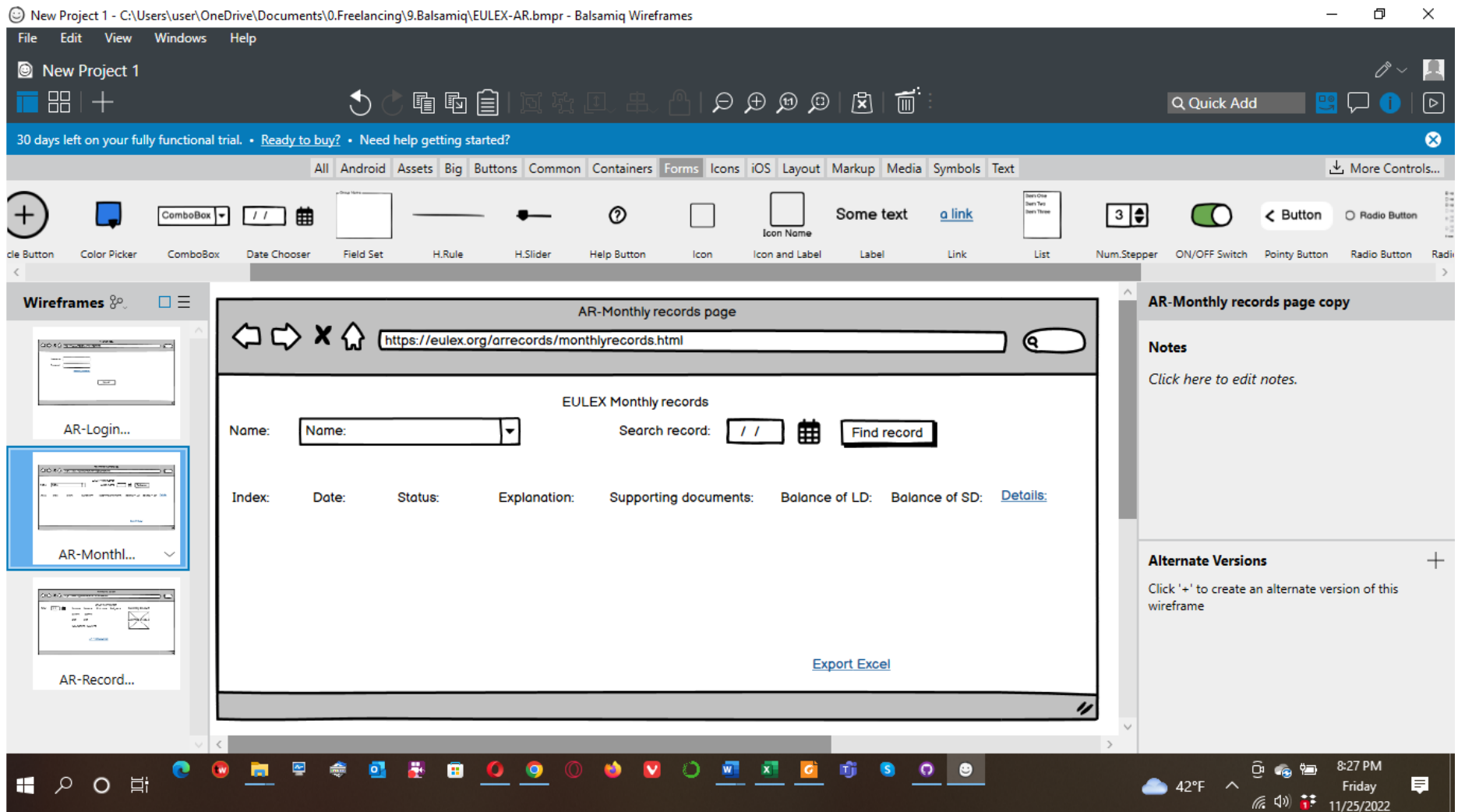
☐ Yes, I have a password:

[Forgotten your Password?](#)

I will paste some Balsamiq interfaces from the past (print screen), my trial version is expired:

These will be a Login Page and a Home Page containing a Search text field and a Search Button.. I can wireframe all these web pages if needed, now it takes too much to work from scratch:





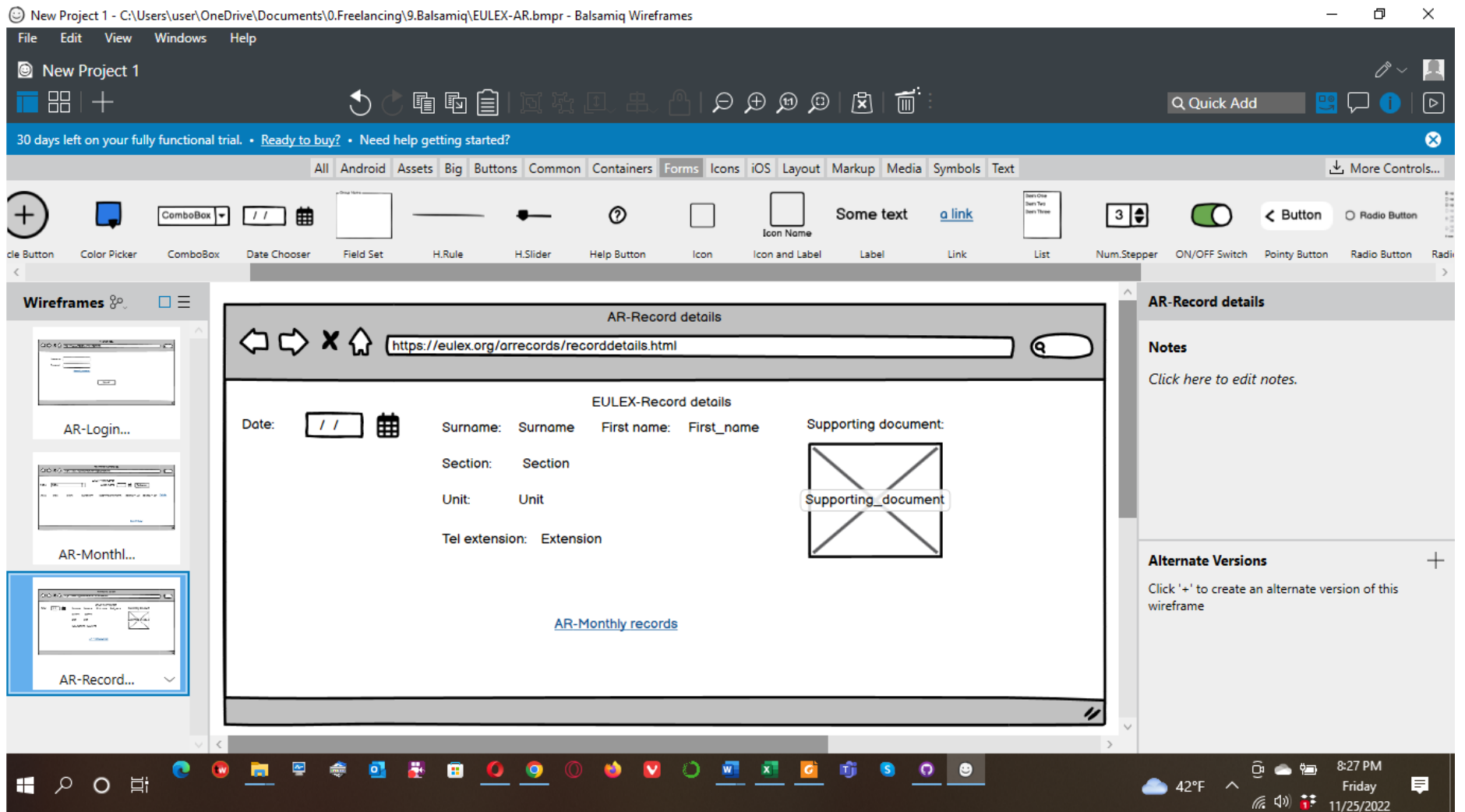
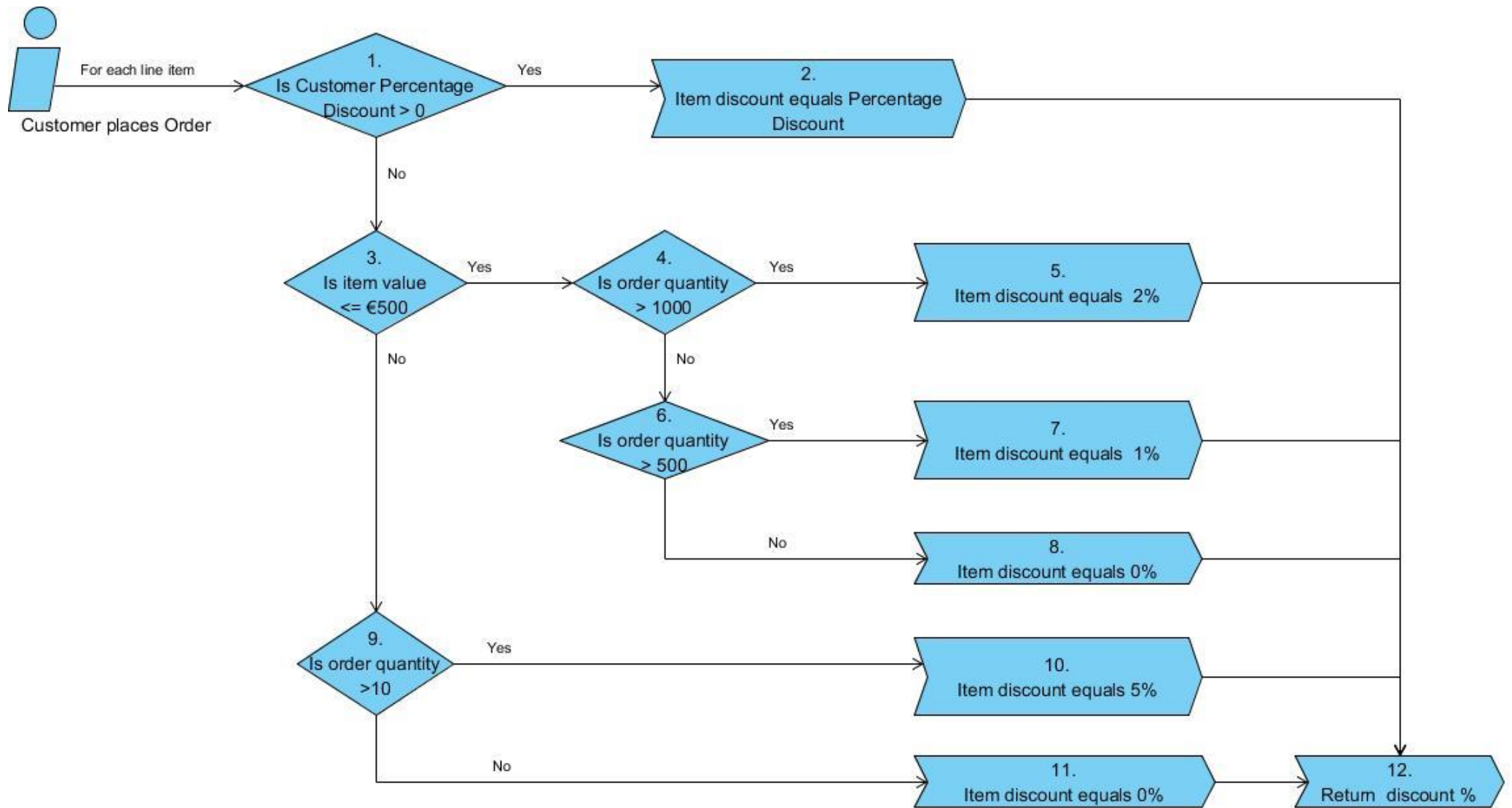




Figure 1: Discount calculation flow chart



**Figure 3: Extract from Supplier Managers' spreadsheet information as at 04/04/2011**

A	B	C	D	E	F	G	H	I	J	K
Supplier Manager	Part ID	Part description	Unit cost price	Price effective date	Supplier	Contact	Can substitute for part	Discount Terms based on order quantity	Specialist part	Other information
Jackie	FTC5547	Standard widget	€1.79	01/03/2011	Design Services Bluebell Ind. Est, Cork	Jane Smith on 067 6346752		1% for 5,000 or more	N	Minimum order quantity is 2,000
Jackie	FTC5561	Large widget	€2.49	01/03/2011	Design Services Bluebell Ind. Est, Cork	Jane Smith on 067 6346752		1% for 10,000 or more	N	Minimum order quantity is 2,000
Jackie	FTC5591	Custom widget	None	01/03/2011	Design Services Bluebell Ind. Est, Cork	Jackie Walsh on 067 6346543			Y	€3.29 per item plus €50 setup cost per order. Minimum order quantity is 100
Jackie	STC5547	Standard widget	€1.93	01/12/2010	Imports inc Dublin Port, Dublin 3		FTC5547	1% for 5,000 or more	N	Minimum order quantity is 1,000
Jackie	STC5561	Large widget	€2.63	01/12/2010	Imports inc Dublin Port, Dublin 3		FTC5561	1% for 5,000 or more	N	Minimum order quantity is 1,000
Jackie	STC5591	Custom widget	None	01/12/2010	Imports inc Dublin Port, Dublin 3	Mark Todd on 7154767	FTC5591		Y	€3.73 per item plus €55 setup cost per order. Minimum order quantity is 100
James	AC3467	3ft rod	€32.50	01/01/2011	Allied Builders Ashtown Ave, Kildare	Adam Reid on 045 3254745		3% for 1,000; 4% for 2,000 or more	N	Cost price due to increase to €33.78 on 01/05/2011
James	DE5645	Standard side panel	€45.35	01/11/2010	Allied Builders Ashtown Ave, Kildare	Joe Black at joe@allied.ie		3% for 1,000; 4% for 2,000 or more	N	
James	DE5647	Standard front panel	€63.78	01/11/2010	Allied Builders Ashtown Ave, Kildare	Joe Black at joe@allied.ie		2% for 500 or more	N	Cost price due to increase by 5% on 01/06/2011
James	DE7124	Custom panel	None		Allied Builders Ashtown Ave, Kildare	Mary O'Connor at mary@allied.ie	ZE7124		Y	Minimum cost is €70, max depends on size
James	ZC2357	3ft rod	€35.51	04/10/2010	Imports inc Dublin Port, Dublin 3	John Adams on 7154745	AC3467	2.5% for 1,000 or more	N	
James	ZE6931	Standard side panel	€46.65	04/10/2010	Imports inc Dublin Port, Dublin 3	John Adams on 7154745	DE5645	2.5% for 1,000 or more	N	
James	ZE6981	Standard front panel	€65.28	04/10/2010	Imports inc Dublin Port, Dublin 3	Mark Todd on 7154767	DE5647	2.5% for 1,000 or more	N	Cost price due to increase by 5% on 01/06/2011
James	ZE7124	Custom panel	None		Imports inc Dublin Port, Dublin 3	Mark Todd on 7154767	DE7124		Y	Minimum cost is €85, max depends on size
James	ZC1437	3ft rod	€36.25	04/10/2010	Design Services Bluebell Ind. Est, Cork	Jane Smith on 067 6346752	AC3467	2.5% for 1,000 or more	N	