



FinAccs User Guide

To: Accounting Teachers

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From: CAPDM

Copies:

RE: *FinAccs - the Accounting Equation App*

FinAccs implements the Accounting Equation (AE) and provides a number of examples 'tagged' up in a simple XML structure that works within the AE framework.

FinAccs comes with an XML Schema to allow authors to structure their own questions to add to a growing library.

FinAccs is a Javascript-based app that can be embedded into a web page. It will load in all questions in its supplied bank for selection, but it also provides a drag-and-drop area for other questions to be opened up, as well as a 'Choose' button to similar effect.

The screenshot shows the application interface with a navigation bar containing tabs for 'Question', 'Transaction', 'Explanation', 'Statements', and 'About'. The 'Question' tab is selected. Below the navigation bar is a dialog box titled 'Choose a Question'. Inside the dialog, there is a section labeled 'Choose from:' with four buttons: 'Geewhiz', 'Newbus', 'Partners', and 'Raith'. Below these buttons, there is a text prompt: '... or drag and drop an AE file to the drop area below, or choose a file.' At the bottom of the dialog, there is a file selection area with a 'Choose File' button, a text box containing 'No file chosen', and a dashed border area with the text '« Drag and drop AE questions here'.

Questions and Transactions

Once loaded, a **Question** is presented as a series of **Transactions** to be undertaken. Normally one would work through the transactions in sequence, but double-clicking on the ► allows you to start, or restart, at any particular transaction with the correct history added. This could be useful, for example, in situations where a teacher wants students to home in on particular features exhibited in a transaction.

Each **Transaction** can represent many entries in the Accounting Equation. Some may look simple, but there can be a complexity to them!

The following question is about starting up a company. Work through the incremental changes in the Accounting Equation for all actions to produce the Financial Statements.

- ▶ 1: Robert Raith commences his Raith Enterprises business with £40,000 from his own savings along with £10,000 in cash from his father. His father is not looking for any interest or early repayment of this loan.
- ▶ 2: The following assets are purchased: Plant & Equipment to the value of £5,000 paid for in cash; a Factory & Warehouse costing £25,000 also paid for in cash; essential Raw Materials to the value of £8,000 but paid half in cash, and half by credit.
- ▶ 3: Before the equipment can function properly it requires post-installation lubrication costing £200. Raith pays for this in cash. £4,000 worth of raw materials are then processed into finished goods through the equipment, at a cost of £400.
- ▶ 4: Raith pays his creditors in full and sells half the finished goods (recorded at cost of £2,200) for £4,000 credit.
- ▶ 5: Raith buys a second-hand delivery van for £3,000 on credit and a typewriter for his secretary for £200 cash.
- ▶ 6: Raith sells the remainder of the finished goods (recorded at a cost of £2,200) for £3,900 cash, and receives payment of £3,000 from his debtors

The Accounting Equation and Transactions

Transaction: 1 (of 12)

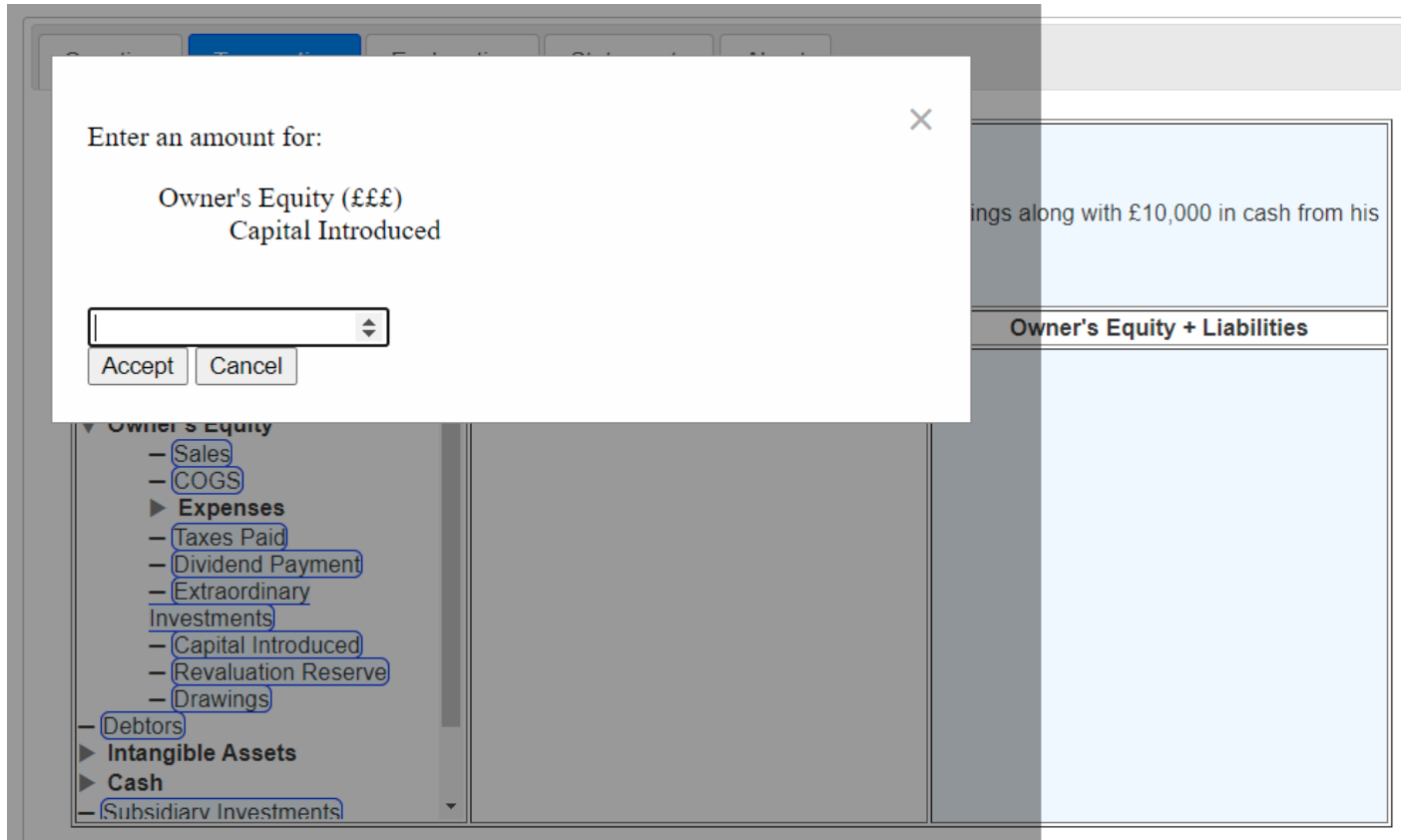
Robert Raith commences his Raith Enterprises business with £40,000 from his own savings along with £10,000 in cash from his father. His father is not looking for any interest or early repayment of this loan.

Accounting Keywords	Assets	Owner's Equity + Liabilities
<ul style="list-style-type: none"> ▶ Fixed Assets ▶ Stock/Inventory ▶ Owner's Equity – Debtors ▶ Intangible Assets ▶ Cash – Subsidiary Investments – Associate Company – Creditors – Long Term Loan 		

The AE is built up within the Transaction tab and the current transaction appears along the top of the table. There are three panes within the lower section of this table:

1. An expandable tree of accounting category **Keywords**, with 'draggable' leaf nodes, e.g. *Creditors*.
2. The Asset side of the AE.
3. The Owner's Equity and Liabilities side of the AE.

Drag a leaf node (an accounting **Keyword**) over to the correct side of the AE and drop it. For example, open up *Owner's Equity* and drag *Capital Introduced* over to the right-hand side of the AE. When dropped, you will see a dialog showing you what you have selected and asking you for an amount.



This represents one **Action** within this overall **Transaction**. Fill in the correct value for the **Action** and repeat for all the **Actions** needed to describe this **Transaction**.

Completing a Transaction

As, mentioned there are generally a number of individual **Actions** required to complete a **Transaction**.

For example, the **Transaction**:

“Robert Raith commences his Raith Enterprises business with £40,000 from his own savings along with £10,000 in cash from his father. His father is not looking for any interest or early repayment of this loan.”

disguises no fewer than four separate **Actions**, hence entries to the AE.

Correct entries will appear in **green**, whereas incorrect ones will appear in **red**. Any incorrect entry can be removed by double-clicking on the small 'x' to the left of the entry.

Question **Transaction** Explanation Statements About

Transaction: 1 (of 12)

Robert Raith commences his Raith Enterprises business with £40,000 from his own savings along with £10,000 in cash from his father. His father is not looking for any interest or early repayment of this loan.

Accounting Keywords	Assets	Owner's Equity + Liabilities
<ul style="list-style-type: none"> - Sales - COGS ▶ Expenses <ul style="list-style-type: none"> - Taxes Paid - Dividend Payment - Extraordinary Investments <ul style="list-style-type: none"> - Capital Introduced - Revaluation Reserve - Drawings - Debtors ▶ Intangible Assets ▶ Cash <ul style="list-style-type: none"> - Subsidiary Investments - Associate Company - Creditors - Long Term Loan 	<ul style="list-style-type: none"> x Long Term Loan (£40000) 	<ul style="list-style-type: none"> x Owner's Equity (£40000) Capital Introduced

Complete

When you think you have all the entries correct then you can complete the **Transaction** with the *Complete* button.

At this point you will be told if you have all the correct entries, in which case you will proceed to the next **Transaction**. If you have made mistakes then you have an option:

- Continue with the current attempt, OR
- Let the App fill in the correct actions for you, then tick over to the next transaction. Nobody is looking, after all – but you won't learn much this way!

Explanation

The Explanation tab shows the details of the previous **Transactions**. For example, the entries for the set of **Actions** required for the example above would be:

Transaction 1: Robert Raith commences his Raith Enterprises business with £40,000 from his own savings along with £10,000 in cash from his father. His father is not looking for any interest or early repayment of this loan.

Action	<p><i>Raith injects 40,000 of his own savings into the new company.</i></p> <p>EQUITY: Amount = £40,000.00</p> <p>Owner's Equity Capital Introduced</p>
Action	<p><i>Raith's equity injection is balanced by a cash asset.</i></p>

ASSET: Amount = £40,000.00

Cash | Non-Operational | From Owners

Action

This amount is topped up by his father who offers Fred a long term loan

EQUITY: Amount = £10,000.00

Long Term Loan

which is represented by a cash asset.

Action

ASSET: Amount = £10,000.00

Cash | Non-Operational | From Creditors

Where the detail, such as *Cash / Non-Operational / From Creditors*, comes from the hierarchy of accounting **Keywords** used in the AE Transaction tab.

Statements

This tab has three sub-tabs, each containing one of the three key accounting **Statements**:

- Balance Sheet
- Profit & Loss Statement
- Cash Flow Statement.

These are built up for you as you work through the transactions.

Question	Transaction	Explanation	Statements	About																																																
<table border="1"><thead><tr><th>Balance Sheet</th><th>Profit & Loss</th><th>Cash Flow</th></tr></thead><tbody><tr><td colspan="3">Current Assets</td></tr><tr><td>Cash</td><td></td><td>50,000</td></tr><tr><td></td><td></td><td><hr/></td></tr><tr><td></td><td></td><td>50,000</td></tr><tr><td>less:</td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td>Net Assets of the Company</td><td></td><td><hr/></td></tr><tr><td></td><td></td><td>50,000</td></tr><tr><td colspan="3">Represented by:</td></tr><tr><td>Capital Introduced</td><td></td><td>40,000</td></tr><tr><td></td><td></td><td><hr/></td></tr><tr><td>Owner's Equity</td><td></td><td>40,000</td></tr><tr><td>Long Term Loan</td><td></td><td>10,000</td></tr><tr><td></td><td></td><td><hr/></td></tr><tr><td></td><td></td><td>50,000</td></tr></tbody></table>					Balance Sheet	Profit & Loss	Cash Flow	Current Assets			Cash		50,000			<hr/>			50,000	less:						Net Assets of the Company		<hr/>			50,000	Represented by:			Capital Introduced		40,000			<hr/>	Owner's Equity		40,000	Long Term Loan		10,000			<hr/>			50,000
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This would be the indicative¹ **Balance Sheet** after the actions of the transaction detailed above. There is a similar progressive sheet for the **P&L** and for **Cash Flow**.

An Operational Issue: Reloading the page

Reloading the page or causing it to be reloaded (e.g. by moving away) is trapped and pops up an *Alert*. If this was your intention, then hitting OK will cause the App to be fully reloaded, taking you back to the front page and list of questions.

If you did this accidentally (which is difficult) then don't worry as you can always re-start at any particular transaction. **FinAccs** doesn't save your work, but you can always continue where you left off and you can see the correct **Actions** up until that point.

For Potential Authors

FinAccs questions are described ('marked up') in a simple XML structure. The **FinAccs** XML Schema can be found here:

<https://demodev.capdm.net/GR/ac/finaccs.xsd>

A fairly complex example (Raith Enterprises) can be found here:

https://demodev.capdm.net/GR/ac/finaccs_ae/raith_ae.xml

and a template for a new question here:

https://demodev.capdm.net/GR/ac/finaccs_ae/question_ae-TEMPLATE.xml

Requirements:

1. Question file names must end in `_ae.xml`
2. Questions must parse against the Schema (this is checked on load)

Good luck.

For Potential Developers

FinAccs is designed to be an App embeddable in a web page.

While it can be used standalone, with the [usage-finaccs.html](#) page presenting the supplied bank of questions (see the first figure above), a link (e.g. an `<a>` tag or `<button>`) can be used to link directly to a particular question, for example if the accompanying text is talking about *Raith Enterprises*.

In this case, add the name part of the AE example filename, which is in the `GR/ac/finaccs_ae` directory/folder, to the URL as a parameter with the name *question*. Questions have the file name structure: `XXX_ae.xml`

Raith Enterprises's file name is therefore: `raith_ae.xml`

<http://myhost.myserver/GR/usage-finaccs.html?question=raith>

¹ Indicative! It may not be as detailed as a BS should be but it should be good to show the key principles.

There is an example in the supplied `usage-finaccs.html` page. There is also a minimal usage page `usage-finaccs.min.html` which only has the App features on it, none of the examples or guides. This shows how **FinAccs** might work when embedded. It is probably best opened in a new window/tab, e.g.:

```
<a href="/GR/usage-finaccs.min.html?question=raith" target="mytab">Raith  
Enterprises</a>
```

Or as a popup, e.g.:

```
<a href="/GR/usage-finaccs.min.html?question=raith" target="mytab"  
onclick="window.open('/GR/usage-finaccs.min.html?question=raith  
, 'popup', 'width=600,height=600'); return false;">Raith Enterprises</a>
```

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If you do use it and develop it further, or indeed develop more questions, then do offer a copy back to CAPDM Ltd. as we will maintain a distribution and a collection of questions.

A refresher – The Accounting Equation

At the heart of Financial Accounting is a relatively simple concept, that of the **Accounting Equation**. From the very large corporation down to the smallest of companies, every one of their business transactions has an effect on the company's financial position. This financial position is measured by the following three key items:

1. **Assets**, i.e. what the company owns. Assets are a company's resources, for example cash, accounts receivable, stock and inventory, investments, land, buildings, equipment, and even goodwill.
2. **Liabilities**, i.e. what the company owes to others. Liabilities are obligations, for example loans payable, accounts payable, salaries, interest payable, and even income and other taxes to be paid. Liabilities are claims by creditors against the company's assets
3. **Owner's Equity**, calculated as the difference between **Assets** and **Liabilities**. It records the amounts invested in a company by the owners, plus the cumulative net income of the company that remains in the company, i.e. not withdrawn or distributed to the owners or shareholders.

The general Accounting Equation shows the balance of a company's resources, i.e. those that are displayed on the Balance Sheet.

The company's **Equity** is shown on the right side of the equation, and the **Liabilities** and **Assets** are shown on the left side. Liabilities and Equity are basically claims on the Assets of a company. One thing to note from the equation is that it shows that all of a company's resources (**Assets**) are provided either by their creditors or their owners (**Liabilities** and **Owner's Equity** respectively).

$$\mathbf{Assets = Liabilities + Owner's Equity}$$

The Accounting Equation is also called the Balance Sheet Equation, and is the foundation for the Double-Entry Bookkeeping system. Within the Double-Entry system the total debits must equal the total credits, as should be expected within an equation.

In a company or corporation, the **Owners' Equity** (or stockholders' equity) represents the **Capital** of the organisation. Every business transaction made by the company affects at least two areas of the company's accounts. This is to be expected as, being an equation, things have to be 'in balance', i.e. the left hand side of the equation must always equal the right hand side.

So the Accounting Equation basically shows that what the company owns (this is its Assets), and these are purchased either by what the company owes (its Liabilities) or by what its owners put in (either from the shareholders' equity or Owners' Equity).

The figure below shows how transactions can effect, or introduce, debits and credits.

Assets = Liabilities + Owner's Equity

Assets		=	Liabilities	
Debit	Credit		Debit	Credit
+	-		-	+

Paid-in Capital		+	Retained Earnings	
Debit	Credit		Debit	Credit
-	+		-	+

Expenses and losses		+	Revenues and gains	
Debit	Credit		Debit	Credit
+	-		-	+