**Online Accountancy Project Details**

**Summary:**

Accountancy Program designed to analyse profits and losses, providing information that investors and business owners need to see how a company is doing over a period of time.

**Criteria:**

* Put a comment on what each line of code does
* When logging in, if the username and password match, send a random code to linked email. (2 factor authentication) If this code is entered back onto the program, then successfully log in and show the current main balance. If username and password doesn’t match, then try again and after 5 times, lock the account for 5 minutes. After 5 minutes, it should let that username try again.
* New User is able to create an account in order to access the application Minimum 8 characters with at least one capital letter and a special character
* There is an admin account that can view existing users and delete users
* The users should be able to enquire past transactions for internal purposes (such as reports) and record hard copies of this data.
* Be able to input cash inflow/outflow (i.e. transactions)
* Be able to delete, record/save new data into database in real time. Database should be updated automatically when the user leaves the application as the save button is pressed. Application should keep in memory inputted data.
* Able to output data summary in the form of Income Statements (Profit & Loss Accounts) for a defined period of time in order to analyse and track the financial situation of a business
* Displays graphs for cash inflow and cash outflow and profits and losses. Cash inflow/outflow should display graph each for one week, 1 month, 3 months, 6 months, 1 year and all time. There should only be one bar graph for inflow and outflow but a button for 1 week, 1 month, 3 months, 6 months and 1 year just above the graph. Example:

Chart, bar chart

Description automatically generated

* The Profits and Loss graph should be one graph too for 1 month, 6 months, 1 year, all time. The profits should be in green and loss in red, stating the total profits and loss for that time period. An example is:

Chart

Description automatically generated

There should also be a button on the top called ‘transaction’ and here, it should just list the pending transactions and under it, it should display all transactions with the latest transaction being shown first with the date and total amount for it. Automatically, when clicking this button, it goes to ‘all’ and there should be a drop down navigation button that shows the names of the past months with the year e.g September 2019, August 2019, going downwards with latest month first. When clicking on this, it should just display the transactions in that month. Under transactions button should be a button for Cash Inflow and Cash Outflow with the same features as all transactions (date, amount, past months)

**Variables , data structures and classes:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Description of the field** | **Data type** | **Sample text** |
| First Name | The employee’s first name stored in this field | Short Text | Harry |
| Last Name | The employee’s last name stored in this field | Short Text | Bayley |
| Username | Used as primary key field | Short Text | Harry12 |
| Password | Password chosen by the user | Short Text | theBes!90 |
| DOB | Employee’s date of birth | Date/time | 25/06/1979 |
| Business name | What is the name of the business/firm | Short Text | DBS Ltd |

* Transactions table split into two different tables: Incomes and expenses

How the table structure should be for each

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Description of the field** | **Data type** | **Sample text** |
| ID | Primary key allocated for each record | AutoNumber | 12 |
| Name of transaction | a few words to say the name of the transaction | Short Text | Sale revenue |
| Date of Transaction | Date when the transaction has been recorded | Date/Time | 07/02/2019 |
| Inflow or Outflow? | Choose either option | Boolean? | Inflow |
| Type of transaction | Can be chosen from the drop down option bar to say what type of transaction | Short text | Revenue |
| From/To: | A few words to say who it is from or who it is to | Short text | Jason Doe |
| Amount | Monetary value of the transaction on GBP | Currency | £256.09 |

Data structure of the access database table:

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Description of the field** | **Data type** | **Sample text** |
| ID | Primary key allocated for each record | Auto Number | 12 |
| Item | Item | Short text | Laptop |
| Category | Tangible/intangible/ personal | Short text | Tangible Asset |
| Condition | Condition of the asset if applicable | Short Text | Perfect/Brand new |
| Location in the business | In what building, sector this asset can be found | Short Text | Office C |
| Owner | It is assumed that all assets are owned by the business, however personal assets can be recorded in this table as well | Short text | Business plc |
| Acquired Date | Date when the asset has been bought/acquired | Date/Time | 26/12/2018 |
| Price | Price paid when acquired | Currency | £1,200 |
| Current Value | Value of the asset at the time given | Currency | £1,200 |
| Manufacturer | Manufacturer if applicable | Short text | Apple Inc |
| Series Number/Model | Model number if applicable | Short text | MR932xx/A |
| Insurance? | If the asset has been insured | Yes | Yes |

Cash Flow Forecast Variables:

|  |  |
| --- | --- |
| **Variable** | **Description of variable** |
| year | Current year |
| month | The month for which the cash flow forecast is represented |
| salesRev | Monetary value of the products sold at the end of the month (credit sales) |
| loans | Monetary value of any loan taken out of a bank at the end of the month |
| incSum | Total inflows – sum of any sources of finance at the end of the month |
| incMonthSum | Total inflow for the month |
| WagesCost | Total direct cost associated with the payment of workers/staff |
| PowerCost | Variable cost that hast be paid at the end of the month |
| LoansCost | Loan repayments coming out of the business each month – how much is being paid every month |
| InsuCost | Insurance cost payed at the end of the month |
| MarkCost | Total cost of any type of promotion/marketing including social media promotion, website payment etc, at the end of the month |
| StockCost | Total amount of money payed to suppliers for raw material/stock at the end of the month. This variable should include any outsourcing cost |
| expSum | Total outflows – sum of total direct and indirect cost that has affected the business, at the end of the month |

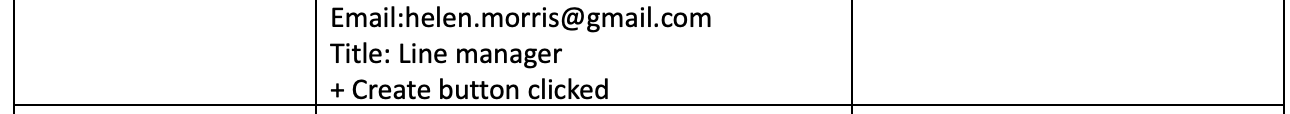
Profits and loss account

|  |  |  |
| --- | --- | --- |
| **Variable** | **Description of variable** | **Type** |
| salesRev | Monetary value of the products sold at the end of the month (credit sales) | Double |
| Open\_St |  | Double |
| StockCost | Total amount of money payed to suppliers for raw material/stock at the end of the month. This variable should include any outsourcing cost | Double |
| Val\_St | Value of the stock | Double |
| cogs | Cost of goods sold – sum of Open\_St, Val\_St and StockCost | Double |
| Gross\_Prof | Gross profit – sum between total sales revenue and cost of goods sold (salesRev+cogs) | Doub;e |
| DepMachine | Depreciation of the machinery owed by the business | Double |
| Rent | Cost | Double |
| Bills | Cost | Double |
| Auto | Cost of renting automobiles like cars, vans | Double |
| power | Cost | Double |
| Net\_Prof | Sum of gross profit and total expenses | Double |

1. Log in form/New User Form

Table

Description automatically generated

Text

Description automatically generated

Table

Description automatically generated

1. Menu Side Bar

|  |  |  |
| --- | --- | --- |
| **Test** | **Input** | **Expected outcome** |
| Menu buttons | Randomly, one button that links a different form is clicked | The current form should close and the corresponding form to the button clicked should appear |
| Sign out button | Click sign out button | Log in form should open |
| Data and Time Labels | N/A | Current date and time should appear at all times on each form |

1. Transactions/Assets form

|  |  |  |
| --- | --- | --- |
| **Test** | **Input** | **Expected outcome** |
| Load data inside of datagridview | Debug application and Open Expenses form | Table should load inside into datagridview |
| Delete button | Clicking delete button when the record wanted to be deleted is selected | The record is deleted from database and removed from the data grid view |
| Edit Button | Clicking edit button when record needs to be edited | User should be able to edit if transaction is a cash outflow, inflow, type of transaction (loan, wage, power cost etc.) and amount in transaction |
| Search engine - by transaction type | Type in “s” in the search bar | Depending on records already in the database, a list of records which have their name starting with letter ‘s’ should be displayed |
| Search engine – by date | Select 14/02/2019 using the date and type picker from the search engine and click Search button | Only records saved into the system on 14/02/2019 should be displayed |
| Past Months button | Click the past months button when records for that month need to be viewed | For both the cash outflow and cash inflow table, by pressing this button, user is able to choose which month with year they want to view and it should display records for that month. |
| Search engine – clear search results | Click clear button | Search results should be cleared and most recent transactions recorded should be displayed again |
| Scroll bar | Hold on the scroll bar | Should move page up and down if |

1. Add Transaction

|  |  |  |
| --- | --- | --- |
| **Test** | **Input** | **Expected outcome** |
| Add button/Save (Commit) button | Click add button  Example of Input (OUTFLOW FORM)🡪  ID: N/A (auto number, therefore input from the user shouldn’t be needed)  Name: House rent  Date: 23/01/2019  Type of transaction: Rent  From: Bill Jones  Amount: £13000  Click save button | When the add button is clicked, all textboxes should be cleared. After the textboxes with the input have been filled and the save button is clicked, a massage should open informing the user that the new record has been saved.  The record should be added(displayed) in the data grid view after the message box is closed. |
| Add/Save button when fields are empty | Click add button  Example of Input (OUTFLOW FORM)🡪  ID: N/A (auto number, therefore input from the user shouldn’t be needed)  Name:  Date:  Type of transaction:  From:  Amount:  Click save button | Error should occur. A message will open informing the user that all fields should be filled before the transaction is saved. |
| Separate table with recently added transactions | Displayed when you click ‘Add transaction’ button on the left on the menu side bar | Displays the recently added transactions with date, amount, time, outflow or inflow and transaction type. |

1. Dashboard

|  |  |  |
| --- | --- | --- |
| **Test** | **Input** | **Expected outcome** |
| Display cashflow of the business for all time | Open Dashboard page | Show the total cashflow. A cashflow bar chart should display inflow and outflow of all time |
| Display cash inflow | Open Dashboard page | Show the total inflows |
| Display cash outflow | Open Dashboard page | Show the total outflows |
| Show Monthly profit | Open Dashboard page  Select a random month from the drop-down list.  Click DISPLAY button | Monthly Profit should be shown somewhere on the Dashboard page. |  |
| Show Profit at the end of the year | Open Dashboard  Select year for which an income statement should be generated | An income statement should be generated where profit at the end of the year should be found. |  |
| Show current main balance | Open Dashboard |  |  |

1. Assets form- ASSET is an expense to a business so when an asset is added, subtract it from current main balance

|  |  |  |
| --- | --- | --- |
| **Test** | **Input** | **Expected outcome** |
| Load Assets table inside of data grid view | Debug application and open assets tracker form | Table should be already loaded inside of the data grid view |
| Add button/Save (Commit) button | Click add button  (Example of Input)  ID: N/A  Item: Apple MacBook  Category: Personal Asset  Condition: Good  Location: Building A  Owner: Business plc  Acquired date: 12/09/2017  Price: £1249  Current Value: £900  Manufacturer: Apple Inc  Series number: MR95T7/XA  Insurance: Yes  Save button | When the add button is clicked, all textboxes should be cleared. After the textboxes with the input have been filled and the save button is clicked, a massage should open informing the user that the new business asset has been saved.  The record should be added(displayed) in the data grid view after the message box is closed. |
| Add/Save button when fields are empty | Click add button  (Example of Input)  ID: N/A  Item:  Category:  Condition:  Location:  Owner:  Acquired date:  Price:  Current Value:  Manufacturer:  Series number:  Insurance:  Save button | Error should occur. A message will open informing the user that all fields should be filled before the transaction is saved. |
| Delete button | Clicking delete button when the record wanted to be deleted is selected | The record is deleted from database and removed from the data grid view |
| Back button when the first record is displayed | Click back button | Message should open informing the user that there are no more records to be displayed as first record is already shown. Textboxes content shouldn’t change. |
| Back button | Click back button | Previous record’s fields should fill all corresponding textboxes. |
| Next button | Click next button | Next record’s fields should fill all corresponding textboxes |
| Next button when last record is displayed | Click next button | Message should open informing the user that there are no more records to be displayed as last record is already shown. Textboxes content shouldn’t change. |

1. Delete user form

|  |  |  |
| --- | --- | --- |
| **Test** | **Input** | **Expected outcome** |
| Delete button | Clicking delete button when the user account wanted to be deleted is selected. The admin will know when this account is selected when the textboxes with the relevant information of the account are filled. | User account details should disappear from the list |
| Delete button when no account is selected | Click delete button when textboxes are empty | Message should open telling the user that an account should be selected in order to delete an account |
| Save button | Click save button | Message informing the admin that changes have been saved.  Delete user form will close |
| Back button when the first record is displayed | Click back button | Message should open informing the user that there are no more records to be displayed as first record is already shown. Textboxes content shouldn’t change. |
| Back button | Click back button | Previous record’s fields should fill all corresponding textboxes. |
| Next button | Click next button | Next record’s fields should fill all corresponding textboxes |
| Next button when last record is displayed | Click next button | Message should open informing the user that there are no more records to be displayed as last record is already shown. Textboxes content shouldn’t change. |

**Rough Designs**

**Log In Form**

**Chart

Description automatically generated with medium confidence**

New User?

**New user Form**

Username:

Password:

* Minimum 8 characters
* Minimum 1 capital letter
* Minimum 1 number
* Minimum 1 special character

Full name:

Date of Birth:

Email:

Company:

Admin OR User. There is only one admin

**After logging on, rough design of screen is:**

Once user clicks menu, all these options would show one by one but dashboard would be shown as the starting page. Whichever option is clicked then turns bold.

Menu

Logged in as**: Admin**

Current main balance

All time cashflow bar chart

Cash Inflow

**Dashboard**

Profits and loss graph for each month for a year

Profit (year)

Total Cash Flow

Cash Outflow

Assets

Users

**Sign out**

19/08/2022

17:02

Add transaction

Transactions

Recent 10 transactions: date, time, outflow or inflow, transaction type (e.g. power cost, rent, loan), amount (use + or – sign to show if amount is deducted or added)

Only admin has this button. In the Users form, admin is able to search up a user through their name through a search engine and only view their current balance. Admin should be able to also delete the user account.

Menu

Clear button

Logged in as**: Admin**

Dashboard

Inflow and outflow graph (users should be able to switch between 1 week, 1 month, 3 months, 6 months, 1 year, all time)

Search:

Assets

Users

**Sign out**

19/08/2022

17:02

Add transaction

**Transactions**

Inflow



Past months

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Name** | **Date** | **Type of transaction** | **From:** | **Amount** |  |  |
|  |  |  |  |  | **Edit** | **Delete** |
|  |  |  |  |  | **Edit** | **Delete** |
|  |  |  |  |  | **Edit** | **Delete** |
|  |  |  |  |  | **Edit** | **Delete** |
|  |  |  |  |  | **Edit** | **Delete** |
|  |  |  |  |  | **Edit** | **Delete** |
|  |  |  |  |  | **Edit** | **Delete** |
|  |  |  |  |  | **Edit** | **Delete** |
|  |  |  |  |  | **Edit** | **Delete** |

****

Profits and loss graph (switch between a month, 6 months, 1 year all time)

Ask one more time if user wants to delete

User can change transaction

In inflow, this will be ‘+£…’. In outflow, it will be ‘-£…’

When option changes to ‘outflow’, this changes to ‘To:’

Inflow or outflow

More rows

* Similar format for the rest of the pages (Add Transactions, Assets, Users)
* This is a ROUGH design- style should be more professional and not bright colours- similar style/colour scheme to a banking app.
* When coding the program, if there is an error, please take a **screenshot of code and error on program, explaining error** and upload to a separate document, then upload a screenshot of the fixed code and fixed program, explaining how it was fixed.
* Please comment on each line of code, explaining what it does.
* After program has been made, please share all the other files I have to download in order to access the code and program.