ICTWEB411

Scenario

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You have been asked by a client to develop a Mortgage calculator for their web site. The calculator is to accept three user input values:

- o   Number of Years – The number of years that they wish to take the loan out over

- o   Loan Amount – The amount they wish to borrow

- o   The frequency of the payment – The client wishes to have the following frequency of payments, weekly, fortnightly, monthly, quarterly and yearly

As the user changes the value of any of the information it should automatically update the following:

The repayment amount is $[the payment amount] each [the frequency of the payment] e.g. the repayment amount is $1084.67 each Month

The client wishes to have default values in for a potential customer to have a look at the way that the calculator would work.

The client also wants to give customers a discount based of the amount they want to borrow. Their current rates are:

- o   5.4% on money borrowed up to $200 000

- o   5.09% on money borrowed from $200 000 to $250 000

- o   4.84% on money borrowed from $250 000 to $500 000

- o   4.79% on money borrowed over $500 000 to $750 000

- o   4.5% on money borrowed over $750 000

Based on the above requirements, you drew up a web based user-interface using Dreamweaver to show the client.

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The client responds that that is precisely how they would like it. Your job is now to write the supporting client-side script in the web document to make it fully functional.

Organisational standards

- o Your script MUST be well documented by:
    - o Observing naming conventions for variables/arrays/functions etc
    - o Formatting code for readability
    - o Commenting code
    - o Commenting functions
- o You MUST demonstrate the use of functions in your scripts. These also aid script readability.
- o Look at the use of event handlers for different kinds of form elements
- o The script should also make use of arrays, conditional statements and comparison operators.
- o There are math and number formatting and calculations that should be used.

Hints:

- o The formula for calculating interest is $$c = \frac{rP}{1 - (1+r)^{-N}} = \frac{Pr(1+r)^N}{(1+r)^N - 1}.$$ where:
    - o r is the monthly interest rate, expressed as a decimal, not a percentage. Since the quoted yearly percentage rate is not a compounded rate, the monthly percentage rate is simply the yearly percentage rate divided by 12; dividing the monthly percentage rate by 100 gives r, the monthly rate expressed as a decimal.
    - o N – is the number of monthly payments, called the loan's term, and
    - o P – is the amount borrowed, known as the loan's principal.

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Example:

Where P= $200 000, r=6.5%, N = (30 years * 12) = 360 months

repayment = (6.5 / 100 / 12, 30 * 12, 200000)

repayment = ((6.5 / 100 / 12) * 200000) / (1 - ((1 + (6.5 / 100 / 12)) ^ (-30 * 12)))

repayment = 1264.14

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Below is a table of the calculation of payment options over 30 years. Use these results to test your calculations

Number of Years	Loan Amount	Weekly	Fortnightly	Monthly	Quarterly	Yearly
30	$ 200,000.00	$ 250.14	$ 500.38	$ 1,084.67	$ 3,259.86	$ 13,144.07
30	$ 300,000.00	$ 364.65	$ 729.46	$ 1,581.26	$ 4,752.25	$ 19,160.95
30	$ 400,000.00	$ 486.21	$ 972.61	$ 2,108.34	$ 6,336.33	$ 25,547.93
30	$ 500,000.00	$ 604.27	$ 1,208.79	$ 2,620.31	$ 7,874.94	$ 31,751.28
30	$ 600,000.00	$ 725.12	$ 1,450.55	$ 3,144.37	$ 9,449.93	$ 38,101.54
30	$ 700,000.00	$ 845.98	$ 1,692.31	$ 3,668.43	$11,024.92	$ 44,451.80
30	$ 800,000.00	$ 934.78	$ 1,869.95	$ 4,053.48	$12,181.94	$ 49,113.23