Forritun
Háskólinn í Reykjavík Haustönn 2018

Skilaverkefni I

Skrifið Python forrit sem gerir notanda kleift að slá inn lánsupphæð og fá upplýsingar um greiðslur þess. Lánið er með tiltekinn höfuðstól og mánaðarlega vaxtaprósentu og er greitt til baka með jöfnum afborgunum. Við lausnina eigið þið eingöngu að nota aðferðir/efni sem fjallað er um í köflum 0-2 í kennslubókinni.

Athugið eftirfarandi atriði:

1. Föst greiðsla er alltaf í mesta lagi $50 á mánuði sem skiptist í afborganir af höfuðstól og vexti.
2. Leyfið notandanum að slá inn höfuðstól lánsins (í $). Þið megið þó gera ráð fyrir því að notandinn slái alltaf inn upphæð sem er < $2500.
3. Hafið vaxtaprósentuna breytilega þannig að ef heildarupphæð lánsins er ≤ $1000 þá er vaxtaprósentan 1,5% á mánuði, annars 2,0% á mánuði. Athugið þó að vaxtaprósentan er föst yfir lánstímann.
4. Fyrir sérhverja greiðslu skrifar forritið út númer mánaðar, heildargreiðslu og vaxtagreiðslu fyrir viðkomandi mánuð og eftirstöðvar lánsins.
5. Skrifið allar rauntölur út með í mesta lagi tveimur aukastöfum. Þið eigið að nota innbyggða Python fallið *round()* til þess.

Dæmi um inntak/úttak:

```
Input the cost of the item in $: 500
Month: 1 Payment: 50.0 Interest paid: 7.5 Remaining debt: 457.5
Month: 2 Payment: 50.0 Interest paid: 6.86 Remaining debt: 414.36
Month: 3 Payment: 50.0 Interest paid: 6.22 Remaining debt: 370.58
Month: 4 Payment: 50.0 Interest paid: 5.56 Remaining debt: 326.14
Month: 5 Payment: 50.0 Interest paid: 4.89 Remaining debt: 281.03
Month: 6 Payment: 50.0 Interest paid: 4.22 Remaining debt: 235.24
Month: 7 Payment: 50.0 Interest paid: 3.53 Remaining debt: 188.77
Month: 8 Payment: 50.0 Interest paid: 2.83 Remaining debt: 141.6
Month: 9 Payment: 50.0 Interest paid: 2.12 Remaining debt: 93.73
Month: 10 Payment: 50.0 Interest paid: 1.41 Remaining debt: 45.13
Month: 11 Payment: 45.81 Interest paid: 0.68 Remaining debt: 0.0

Number of months: 11
Total interest paid: 45.81
```

Miðað við inntakið (upphæð láns) 500 á forritið ykkar á að skrifa út nákvæmlega þennan texta að ofan.

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Assignment I

Write a Python program which allows the user to input a principal amounts for a loan and then prints out information about the individual payments. The loan has a given face value and monthly interest rate and is paid back in equal monthly installments. In your solution, you should only use methods/material discussed in Chapters 0-2 in the textbook.

Note the following items:

1. The monthly loan payment is always at most $50, and includes the principal payment and interests.
2. Allow the user to input the face value (in $). However, you can assume that the user will always input an amount < $2500.
3. The interest rate should vary such that if the amount borrowed is ≤ $1000 the rate is 1.5% per month, else 2.0% per month. Note, however, that the interest rate is fixed during the lifetime of the loan.
4. For each payment, the program should output the month number, the toal amount paid and the interest paid for the month, and the remainder of the loan.
5. All float numbers should be written out with at most two digits after the decimal point. You should use the built-in Python function round() for this purpose.

Example input/output:

```
Input the cost of the item in $: 500
Month: 1 Payment: 50.0 Interest paid: 7.5 Remaining debt: 457.5
Month: 2 Payment: 50.0 Interest paid: 6.86 Remaining debt: 414.36
Month: 3 Payment: 50.0 Interest paid: 6.22 Remaining debt: 370.58
Month: 4 Payment: 50.0 Interest paid: 5.56 Remaining debt: 326.14
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Month: 11 Payment: 45.81 Interest paid: 0.68 Remaining debt: 0.0

Number of months: 11
Total interest paid: 45.81
```

Assuming the input (loan face value) 500, your program should output the exact text shown above.