ForLoops

Mock Test

Grade 10
Information Technology

Question 1
Load **Project1.DPR** in the **Q1** sub-folder:

Complete the code for the *OnClick* event handler for the *btnFind* button that calculates and displays the SUM of only the fractions that are 1 / a multiple of 5. The range of numbers for the denominators that must be added is determined by the start and ending values given as input by the user via the spin edit controls.

Example 1: Start value = 1 and end value = 22

$$\text{SUM} = 1 + \frac{1}{5} + \frac{1}{10} + \frac{1}{15} + \frac{1}{20} = 1.41667$$

Example 2: Start value = 15 and end value = 80

$$\text{SUM} = 1 + \frac{1}{15} + \frac{1}{20} + \frac{1}{25} + \ldots\ldots + \frac{1}{70} + \frac{1}{75} + \frac{1}{80} = 1.37615$$

The answer must be displayed to **FIVE** decimal places in the edit control.

Question 2
Load **Project1.DPR** in the **Q2** sub-folder:

The program is designed to calculate the monthly balance of a bank loan that Mr Long took to buy a new HD-TV. After every month, the interest of the amount of the loan is ADDED to the account. Mr Long pays a monthly payment which is taken off the loan after the interest has been calculated.

Example (using the parameters shown) -
The first month is calculated as follows:
Loan Amount is R 6000
Interest: 4% X R 6000 = R 240
Final: R 6000 + R 240 (Interest)
              – R 350 (payment) = R 5890

The next month is calculated as
Interest: 4% X R 5890 = R 235.60
Final: R 5890 + R 235.60 – R 350
              = R 5775.60, etc.

Every 6 months Mr Long gets a bonus. He uses R500 of that bonus to make a further payment to the loan. In other words, every 6 months Mr Long pays back R350 and another R500 for that month.

Complete the code for the *btnCalculate* button event handler which must calculate and display the outstanding balance of the loan after every month for the number of months specified by the user. The results must be displayed as shown in the diagram.

Bank Loan

Loan Value: 6000
Monthly Payments: 350
Interest Rate (%): 4
Number of Months: 18

Calculate
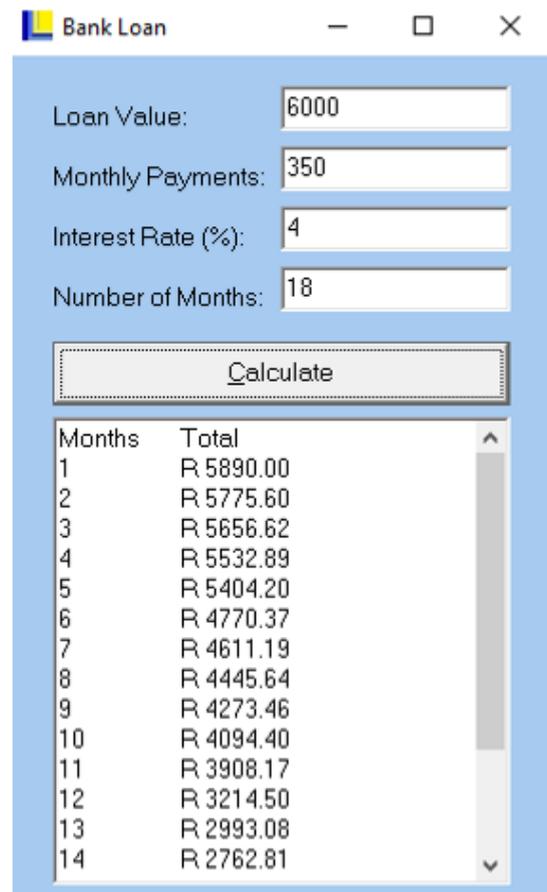
| Months	Total
1	R 5890.00
2	R 5775.60
3	R 5656.62
4	R 5532.89
5	R 5404.20
6	R 4770.37
7	R 4611.19
8	R 4445.64
9	R 4273.46
10	R 4094.40
11	R 3908.17
12	R 3214.50
13	R 2993.08
14	R 2762.81

Question 3
Load **Project1.DPR** in the **Q3** sub-folder:

The program takes in two integer values that represent the starting time and the finishing time (in minutes). It then displays all the converted times (converts the minutes into hours & minutes) between the given starting and finishing times. A suitable heading must also be given.

The format of the output must be displayed as shown in the diagram.

Complete the code for the **OnClick** event handler of the **btnDisplay** button that must do this.

Convert Minutes	— □	×

Start `115` ▲▼ Finish `125` ▲▼

Display	Close

| Minutes	Converted Time
115	1 hours & 55 minutes
116	1 hours & 56 minutes
117	1 hours & 57 minutes
118	1 hours & 58 minutes
119	1 hours & 59 minutes
120	2 hours & 0 minutes
121	2 hours & 1 minutes
122	2 hours & 2 minutes
123	2 hours & 3 minutes
124	2 hours & 4 minutes
125	2 hours & 5 minutes
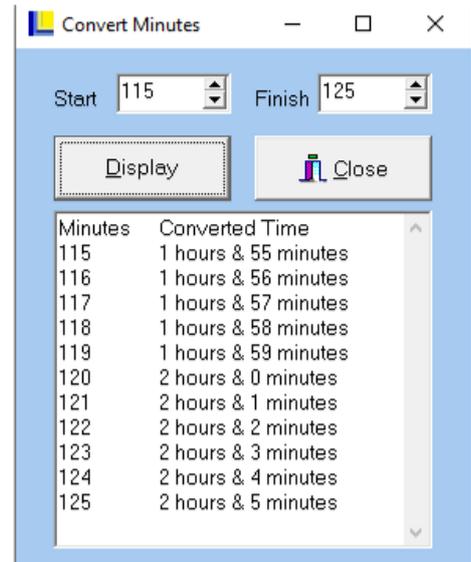
Question 4
Load **Project1.DPR** in the **Q4** sub-folder:

A Sinor Even number is a number that:
- the sum of all its factors, other then itself and 1, is EVEN
AND
- the sum of all its factors, other then itself and 1, is greater than the number itself.

Complete the code for the **btnTest** button, which must test if a number is a Sinor Even number or not. A message must be displayed in the **edtAnswer** edit control as shown in the diagram.

Example: 36 is a Sinor Even number:
Factors 2 + 3 + 4 + 6 + 9 + 12 + 18 = 54 which is even and > 36.

Sinor Even Number	— □	×

Enter Number: | Test |
`36`

`36 is a Sinor Even Number.`

END OF MOCK TEST
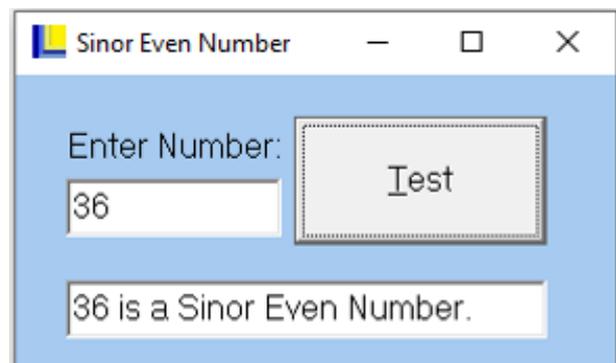
Video answers to the above questions can be found on our ▶ YouTube channel at
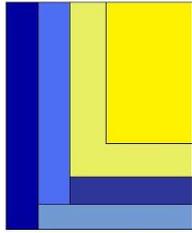
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Question 1: https://youtu.be/dgefezmAUAQ
Question 2: https://youtu.be/befy914ea1c
Question 3: https://youtu.be/K9ZyprIosiQ
Question 4: https://youtu.be/cRLxaBnANQ4