## The Great Computer Challenge Visual Basic Level IV

## Weight Watchers! High School Basic (30 points)

The owner of a local health club added a snack bar to her club. The snack bar offered low-fat items, such as fruit and herbal teas, along with high-fat items, such as pizza, chocolate, and milk shakes. Unfortunately, by noon each day, the snack bar was sold out of all of the high-fat items. To encourage her patrons to eat healthier and to motivate them to exercise more, the owner decided to calculate the fat calories and the fat percentage for each food item that the snack bar sold.

Your group has been hired to create an application that allows the owner to enter a specific food's total calories and grams of fat. The application then calculates and displays the food's fat calories (the number of calories attributed to fat) and its fat percentage (the ratio of the food's fat calories to its total calories). The number of fat calories in a food is determined by multiplying the number of fat grams contained in the food by the number nine, because each gram of fat contains nine calories. To calculate the fat percentage, the food's fat calories are divided by its total calories and the result is multiplied by 100. The message "Low-fat food" should be displayed if the fat percentage is less than or equal to 30 %; otherwise, the message "High-fat food" should be displayed.

(Extra points for creative input and output displays).

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## Fancy Skateboards are Us! High School Basic (30 points)

Write a program that will convert any positive number (up to four numerals) in any base (base 2 thru 20) to any other base (base 2 thru 20). It would be expected that your program will check for illegal numbers and bases. Notice that for bases larger than 10 we start by using the numerals A, B, etc. after 9.

Sample dialog:

Welcome to Base Converter What is the base of the original number (2-20)? 16 What is the base of the answer? 7 What is the number in base 16? A4 Answer in base 7 is: 323

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## Money Changer High School Basic (40 points)

There are a maximum of twelve people who want to play tug-of-war. In order to be fair, the referee wants to be able to divide the two sides so that they are as evenly balanced as possible in terms of total pounds weighed by each side. For input, the referee will enter the participant's name (from 2 to 12 people) and the number of pounds weighed by the participant. The program should respond with the division, listing the weights and the totals, into side A and side B. There may not be a perfect balance, but all of the best possible divisions, should there be more than one way, should be listed. Notice, we could conceivably have a side with only one adult and another side with all three children.

(Extra points for creative input and output displays).

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