

Question# 1

Write a C++ program which can ask the user to enter a four-digit number. You need to create a function **“PrintTables”** which received that entered number as parameter and print two tables from that number. The 1st two-digit represents the starting and ending point of the tables and 2nd pair represents the table numbers.

Example:

Input:

Enter 4-digit number: 1834

Output:

Table:1	Table: 2
3 * 1 = 3	4 * 1 = 4
3 * 2 = 6	4 * 2 = 8
3 * 3 = 9	4 * 3 = 12
3 * 4 = 12	4 * 4 = 16
3 * 5 = 15	4 * 5 = 20
3 * 6 = 18	4 * 6 = 24
3 * 7 = 21	4 * 7 = 28
3 * 8 = 24	4 * 8 = 32

Question# 2

A tourism company **“Snow Travellers”** wants to create a software for organizing trips. They have only two 32 seaters buses available for trips and one reserved bus, available buses can be increased if the travellers increase than the default capacity with the owner permission. Travellers can buy a single ticket as well as tickets for groups. On a group of 3 peoples, they will have 10% discount. In each bus, 2 seats are reserved for the drivers. You as a member of the developing team, have been assigned the responsibility of selling the tickets and also to generate a report, which shows the total revenue generated from tickets, and also how many remaining tickets you have. The price of the ticket is Rs 1999. Last three tickets charged as half of the actual price of the ticket. You are required to keep selling the tickets until tickets are finished or owner asks you to stop selling.

Question# 3

Write a C++ program which can ask the user to enter any positive integer number. You are required to create a function for each of the following task:

1. Check the entered number is palindrome or not
2. Check the entered number is prime or not
3. Total count of digits
4. Sum of all digits
5. Count of even digits
6. Sum of even digits

7. Count of odd digits
8. Sum of odd digits
9. Maximum digit
10. Minimum digit

Note: Result of all the functions must be display in main function.

Question# 4

Write a program that takes input of number of rows and then prints the diamond for the given number of rows. For example:

Enter the number of rows: 5

The shape is:

```

A
BCD
EFGHI
JKLMNOP
QRSTUVWXYZ
YXWVUTSRQ
PONMLKJ
IHGFE
DCB
A

```

Input	Output
4	<p>The shape is:</p> <pre> A BCD EFGHI JKLMNOP PONMLKJ IHGFE DCB A </pre>
3	<pre> A BCD EFGHI IHGFE DCB A </pre>

7

```

A
BCD
EFGHI
JKLMNOP
QRSTUVWXYZ
Z[\]^_`abcd
efghijklmnopq
qponmlkjihgfe
dcba`_^]\[Z
YXWVUTSRQ
PONMLKJ
IHGFE
DCB
A

```

Question# 5

Write a program that produces the following output. Use nested loops

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!!!!!!!!!!!!!!!!!!!!!!
\\!!!!!!!!!!!!!!!!!!!!//
\\\!!!!!!!!!!!!!!!!!!!!///
\\\\\!!!!!!!!!!!!!!!!!!!!///
\\\\\\!!!!!!!!!!!!!!!!!!!!///
\\\\\\\\\!!!!!!!!!!!!!!!!!!!!///
\\\\\\\\\\\\!!!!!!!!!!!!!!!!!!!!///

```

Question# 6

Guess The Number Game: write a program that will ask the user to guess a secret number randomly generated by your program between 1-10. Player have 3 trials to guess the number. After each trial, you have to inform the user, either he/she has guessed it correctly or not, and the remaining trials to guess the number. In each trial your program should generate a new random number. If user guess at least twice correctly, then shows the message, “**you won by 2-1**” and vice versa for losing.

When game is over, ask the user to play again: If the user types "yes", the game start again. else stop the game.

Question# 7

Design a system for a restaurant in which users can order multiple food items from the following menu:

- Press 1 to buy pizza
- Press 2 to buy rice
- Press 3 to buy steak
- Press 4 to buy spaghetti
- Press 5 to buy tea

User enters the balance in their credit card. User can buy multiple products if he/she has desired balance. If user is a member of the restaurant, then system should give 10% discount. At the end add 16% GST on total bills and deduct money from credit card. You are required to follow following price chart of the products:

- Pizza= 1500
- Rice= 350
- Steak = 1100
- Spaghetti=500
- Tea=30

Question# 8

Write a program that accepts two integer input "lines" and "cheers" and prints a series of "cheer" lines at increasing levels of indentation. The first parameter represents the number of lines of output to print, and the second represents the number of "cheers" per line.

For example, if lines=2 and cheers =4 than you should print 2 lines of output, each containing 4 "cheers." A "cheer" is an occurrence of the word "Go" in the output.

Neighbouring cheers are separated by the word "Buddy", so 1 cheer is printed as "**Go**", 2 cheers as "**Go Buddy Go**", 3 cheers are printed as "**Go Buddy Go Buddy Go**", and so on.

The lines you print should be displayed at increasing levels of indentation. The first line displayed should have no indentation, but each following line should be intended by 3 spaces more than the one before it. In other words, the 2nd line of output should be indented by 3 spaces, the 3rd line by 6 spaces, and so on.

Input	Lines=2 Cheers=1	Lines=4 Cheers=3	Lines=2 Cheers=4
	Go Go	Go Buddy Go Buddy Go Go Buddy Go Buddy Go Go Buddy Go Buddy Go Go Buddy Go Buddy Go	Go Buddy Go Buddy Go Buddy Go Go Buddy Go Buddy Go Buddy Go

Question# 9

Take user input for a sentence (character by character) and count total number of vowels both individually and collectively. Your program should output

- Total Number of Vowels
- Total Number of a's
- Total Number of e's
- Total Number of i's
- Total Number of o's
- Total Number of u's

Remember that the vowels can be upper or lower case both.

Question# 10

Write a program that displays the following menu:

Welcome to Guessing games

1. Play Higher or Lower
2. Play paper - scissors - rock
3. Guess the numbers
4. Quit

Enter your choice (1 - 4)

If the user enters 1, the program should generate two random numbers between 1 and 20 and display the first number. It should then ask the user to enter either H or L for Higher or Lower. The user wins if they entered H and the second number was higher than the first or when they entered L and the second number was lower than the first.

If the user enters 2, the program should generate one random number between 1 and 3 with 1 corresponding to paper, 2 to scissors, and 3 to rock. The program should then ask the user to enter P for paper, S for scissors, or R for rock. If the user guesses the correct corresponding number, the program should then display who won the computer or the user. Scissors beats paper, rock beats scissors, and paper beats rock.

Example: if the random number is 2 and the user enter the character S the program should display, you won: Scissors beats paper. If user enter any other character, the program should display: you lose.

Finally, if the user enters 3, the program will generate three random numbers each between 0 and 9. The user should guess three numbers and the program should compare each of the user's guess to the three generated random numbers and display an appropriate output based on whether they got:

1. Any one matching
2. Two matching

3. Three matching, not in order
4. Three matching in exact order
5. No matches at all

Input Validation: Display an error message if the user enters a number outside the range of through 4 when selecting an item from the menu. Do not accept characters other Than H or L for Higher / Lower, other than P, S, and R for paper, scissors and rock , or a value outside the range from 0 to 9 for guessing numbers.

The user can play games in repeated manner until user terminate the game by choice.