National University of Computer and Emerging Sciences

Laboratory Manual

for

Computer Organization and Assembly Language Programming

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OBJECTIVES:

- Understand Infinite Loop-Based Animation. Learn to implement an animated effect where a symbol (star) moves continuously within a specific column of the console, simulating a falling motion

- Implement Keyboard-Controlled Thread Creation: Develop the ability to dynamically start new threads for falling stars using keyboard input, with each thread targeting a different column.

- Master Multithreaded Column Management: Understand how to schedule and manage multiple threads, each working independently to display animations in different columns, using timer-based multitasking.

Task 1: Write a function fallingStar that takes column number as parameter and prints a star moving in that column.

For example, if colNo is 80, your function will print a star in column 80, falling from row 0 to row 24 (with some delay). After reaching row 24, it will again appear on 1st row and start falling again, in an infinite loop.

Task 2: Write a program that starts a new thread of falling star if the user presses key '8'.

Each thread will start with a difference of 5 columns i.e.

1st thread: star falling on column 80 (row 0 to 24 in infinite loop)
2nd thread: star falling on column 75 (row 0 to 24 in infinite loop)
3rd thread: start falling on column 70 and so on.