Algorithm: Relocation Loader

1. START 2. Declare all necessary variables: i, j, hexaddr, startaddr, line, and addr. 3. Prompt the user to enter the relocation displacement: "Enter the relocation displacement : " 4. Read the user’s input as a hexadecimal number (%x) and store it in the variable startaddr. Example: startaddr = 3000 5. Open the file named obj.txt for reading. 6. Start a loop that reads one line at a time from the file (using fscanf) and stores it in the variable line. Continue this loop until the end of the file is reached. 7. Check the first character of the line: - If it is not 'T' (for example, 'H' or 'E'), skip processing and go back to Step 6. - If it is 'T', perform the following steps (8–12). 8. Extract the original address: - Copy the 6 characters after 'T' (from position 1 to 6) into the variable addr. - Example: For T001000..., addr becomes "001000". 9. Convert the address to a number: - Use the strtol function to convert addr (e.g., "001000") into a hexadecimal number. - Store this value in hexaddr. - Example: hexaddr = 1000. 10. Start processing the code part of the line: - Set i = 9 to skip over 'T', the address (6 digits), and the length (2 digits). - Start an inner loop that continues until the end of the line. 11. Relocate and print values: - Calculate the relocated address: newaddr = hexaddr + startaddr. - Print the new address followed by a tab and the next two characters from the line. Example: 4000 14 12. Update values for the next iteration: - Increment hexaddr by 1. - Increment i by 2 (to move to the next pair of characters). - Repeat Step 11 until the end of the line. 13. When the inner loop finishes, go back to Step 6 to read the next line. Example: If the next line starts with T002000..., hexaddr = 2000 and new output starts at 5000. 14. When all lines are processed, close the file. 15. END