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<pre> /** * replace - Replaces all occurrences of character 'old' in the given string with * character 'new'. * * This function creates a new string in memory, with all occurrences of the character * 'old' in the input * string replaced with the character 'new'. The input string remains unchanged. * The new string is created * dynamically in memory using the malloc() function. The function returns a pointer * to the new string. * * @param x0: Address of the input string to be modified. * @param x1: Character to be replaced. * @param x2: Character to replace 'old' with. * @return x0: Pointer to the newly created string. * * Registers used: x0, x1, x2, x3, w4 * Registers saved: lr */ .global replace replace: // Save the link register and the input string pointer on the stack stp lr, x0, [sp, #-16]! // Save the 'old' and 'new' characters on the stack stp x1, x2, [sp, #-16]! // Get the length of the input string bl length // Increment the length by 1 to make space for the null terminator add x0, x0, #1 // Allocate memory for the new string using malloc bl malloc // Restore the 'old' and 'new' characters from the stack ldp x2, x3, [sp], #16 ldp lr, x1, [sp], #16 stp lr, x0, [sp, #-16]! loop: // Load the next character from the input string ldrb w4, [x1], #1 // If the character is null, we have reached the end of the string cmp w4, #0 b.eq end // If the character is the 'old' character, replace it with the 'new' character cmp w4, w2 b.eq swap // Otherwise, copy the character to the new string strb w4, [x0], #1 b loop swap: // Copy the 'new' character to the new string strb w3, [x0], #1 </pre>		

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<pre> b loop end: // Restore the input string pointer and the link register from the stack ldp lr, x0, [sp], #16 ret </pre>		