Assignment 9

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#include <stdio.h>
#include <string.h>
#include <ctype.h>

void reverseString(char* str);

// Custom function for strrev (not standard in string.h)
void reverseString(char* str) {
    int len = strlen(str);
    for (int i = 0; i < len / 2; i++) {
        char temp = str[i];
        str[i] = str[len - 1 - i];
        str[len - 1 - i] = temp;
    }
}

int main() {
    char str1[100] = "Hello";
    char str2[100] = "World";
    char str3[100];

    printf("Original str1: %s\n", str1);
    printf("Original str2: %s\n\n", str2);

    // 1. strlen
    printf("Length of str1: %zu\n", strlen(str1));

    // 2. strcpy
    strcpy(str3, str1);
    printf("Copy str1 to str3: %s\n", str3);
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// 3. strncpy
strncpy(str3, str2, 3);
str3[3] = '\0';  // null terminate manually
printf("Copy first 3 chars of str2 to str3: %s\n", str3);

// 4. strcat
strcat(str1, str2);
printf("Concatenate str2 to str1: %s\n", str1);

// 5. strncat
strncat(str1, "!!", 2);
printf("Concatenate '!!' to str1: %s\n", str1);

// 6. strcmp
printf("Compare str1 and str2: %d\n", strcmp(str1, str2));

// 7. strncmp
printf("Compare first 3 chars of str1 and str2: %d\n", strncmp(str1, str2, 3));

// 8. strchr
printf("First occurrence of 'l' in str1: %s\n", strchr(str1, 'l'));

// 9. strrchr
printf("Last occurrence of 'l' in str1: %s\n", strrchr(str1, 'l'));

// 10. strstr
printf("Find substring 'lo' in str1: %s\n", strstr(str1, "lo"));

// 11. strpbrk
printf("First match of any char from 'aeiou' in str1: %s\n", strpbrk(str1, "aeiou"));
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// 12. strspn
printf("Length of initial segment in str1 containing only vowels: %zu\n", strspn(str1, "aeiou"));

// 13. strcspn
printf("Length of initial segment in str1 without vowels: %zu\n", strcspn(str1, "aeiou"));

// 14. strtok
char temp[] = "Hi-Manish-Here";
char* token = strtok(temp, "-");
printf("Tokens:\n");
while (token != NULL) {
   printf("  %s\n", token);
   token = strtok(NULL, "-");
}

// 15. reverseString (custom strrev)
char revStr[] = "ReverseMe";
reverseString(revStr);
printf("Reversed string: %s\n", revStr);

// 16. memset
char buffer[10];
memset(buffer, '*', 5);
buffer[5] = '\0';
printf("After memset: %s\n", buffer);

// 17. memcpy
char src[] = "CopyThis";
char dest[20];
memcpy(dest, src, strlen(src)+1);
```

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    printf("Copied string using memcpy: %s\n", dest);

    // 18. memmove (overlapping copy)
    char text[] = "abcdefgh";
    memmove(text + 2, text, 5);
    text[7] = '\0';
    printf("After memmove with overlap: %s\n", text);

    // 19. memcmp
    printf("Memory compare: %d\n", memcmp("abc", "abc", 3));

    // 20. isalpha, isdigit, isspace demo
    char c = 'M';
    printf("isalpha('%c'): %d\n", c, isalpha(c));
    c = '5';
    printf("isdigit('%c'): %d\n", c, isdigit(c));
    c = ' ';
    printf("isspace(' '): %d\n", isspace(c));

    // 21. toupper / tolower
    char ch = 'g';
    printf("toupper('%c'): %c\n", ch, toupper(ch));
    ch = 'G';
    printf("tolower('%c'): %c\n", ch, tolower(ch));

    return 0;
}
```