// 1. Count the number of spaces in a string

#include <stdio.h>

int main() {

char str[] = "This is a test string";

int count = 0;

for (int i = 0; str[i]; i++) {

if (str[i] == ' ')

count++;

}

printf("Number of spaces: %d\n", count);

return 0;

}

// 2. Count number of alphabets, digits and symbols

#include <stdio.h>

#include <ctype.h>

int main() {

char str[] = "Hello World! 123 #$%";

int alphabets = 0, digits = 0, symbols = 0;

for (int i = 0; str[i]; i++) {

if (isalpha(str[i]))

alphabets++;

else if (isdigit(str[i]))

digits++;

else if (!isspace(str[i]))

symbols++;

}

printf("Alphabets: %d, Digits: %d, Symbols: %d\n", alphabets, digits, symbols);

return 0;

}

// 3. Replace all vowels with '\*'

#include <stdio.h>

#include <ctype.h>

int main() {

char str[] = "Replace vowels in this sentence.";

for (int i = 0; str[i]; i++) {

char ch = tolower(str[i]);

if (ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u')

str[i] = '\*';

}

printf("After replacing vowels: %s\n", str);

return 0;

}

// 4. Remove all spaces from a string

#include <stdio.h>

int main() {

char str[] = "Remove all spaces from this string.";

int i = 0, j = 0;

while (str[i]) {

if (str[i] != ' ') {

str[j++] = str[i];

}

i++;

}

str[j] = '\0';

printf("String without spaces: %s\n", str);

return 0;

}

// 5. Remove all vowels from a string

#include <stdio.h>

#include <ctype.h>

int main() {

char str[] = "Remove all vowels from this string.";

int i = 0, j = 0;

while (str[i]) {

char ch = tolower(str[i]);

if (!(ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u')) {

str[j++] = str[i];

}

i++;

}

str[j] = '\0';

printf("String without vowels: %s\n", str);

return 0;

}

// 6. Convert sentence case to title case (first letter capital of each word)

#include <stdio.h>

#include <ctype.h>

int main() {

char str[] = "this is a sentence for title case.";

int capitalize = 1;

for (int i = 0; str[i]; i++) {

if (isspace(str[i])) {

capitalize = 1;

} else if (capitalize && isalpha(str[i])) {

str[i] = toupper(str[i]);

capitalize = 0;

} else {

str[i] = tolower(str[i]);

}

}

printf("Title case: %s\n", str);

return 0;

}

// 7. Find the longest word in a string

#include <stdio.h>

int main() {

char str[] = "Find the longest word in this sentence.";

int maxLen = 0, currLen = 0, maxStart = 0, start = 0;

for (int i = 0; ; i++) {

if (str[i] != ' ' && str[i] != '\0') {

currLen++;

} else {

if (currLen > maxLen) {

maxLen = currLen;

maxStart = start;

}

currLen = 0;

start = i + 1;

if (str[i] == '\0')

break;

}

}

printf("Longest word: ");

for (int i = maxStart; i < maxStart + maxLen; i++)

putchar(str[i]);

printf("\n");

return 0;

}

// 8. Count occurrence of each character (no arrays)

#include <stdio.h>

#include <string.h>

int main() {

char str[] = "character count";

int len = strlen(str);

printf("Character occurrences:\n");

for (int i = 0; i < len; i++) {

int count = 1;

if (str[i] == '\0')

continue;

for (int j = i + 1; j < len; j++) {

if (str[i] == str[j]) {

count++;

str[j] = '\0'; // mark as counted

}

}

if (str[i] != '\0')

printf("%c : %d\n", str[i], count);

}

return 0;

}

// 9. Print each character on new line with its ASCII value

#include <stdio.h>

int main() {

char str[] = "ASCII values";

printf("Characters with ASCII values:\n");

for (int i = 0; str[i]; i++) {

printf("%c : %d\n", str[i], (int)str[i]);

}

return 0;

}

// 10. Toggle the case of all characters in a string

#include <stdio.h>

#include <ctype.h>

int main() {

char str[] = "Toggle CASE";

for (int i = 0; str[i]; i++) {

if (islower(str[i]))

str[i] = toupper(str[i]);

else if (isupper(str[i]))

str[i] = tolower(str[i]);

}

printf("Toggled case string: %s\n", str);

return 0;

}