1. Find length of a string without using strlen()

```
#include <stdio.h>

void main() {
   char str[100];
   int i = 0;

   printf("Enter a string: ");
   gets(str);

   while (str[i] != '\0') {
      i++;
   }

   printf("Length of the string: %d\n", i);
}
```

Input: Hello
Output: Length of the string: 5

---

2. Copy one string to another

```
#include <stdio.h>

void main() {
   char str1[100], str2[100];
   int i = 0;

   printf("Enter a string: ");
   gets(str1);

   while (str1[i] != '\0') {
```

```
    str2[i] = str1[i];
    i++;
  }
  str2[i] = '\0';

  printf("Copied string: %s\n", str2);
}
```

Input: World
Output: Copied string: World

---

3. Concatenate two strings

```
#include <stdio.h>

void main() {
  char str1[100], str2[100];
  int i = 0, j = 0;

  printf("Enter first string: ");
  gets(str1);
  printf("Enter second string: ");
  gets(str2);

  while (str1[i] != '\0') i++;

  while (str2[j] != '\0') {
    str1[i] = str2[j];
    i++;
    j++;
  }
  str1[i] = '\0';
```

```
    printf("Concatenated string: %s\n", str1);
}
```

Input:
Hello
World
Output: Concatenated string: HelloWorld

---

4. Compare two strings

```
#include <stdio.h>

void main() {
    char str1[100], str2[100];
    int i = 0, flag = 0;

    printf("Enter first string: ");
    gets(str1);
    printf("Enter second string: ");
    gets(str2);

    while (str1[i] != '\0' || str2[i] != '\0') {
        if (str1[i] != str2[i]) {
            flag = 1;
            break;
        }
        i++;
    }

    if (flag == 0)
        printf("Strings are equal\n");
    else
        printf("Strings are not equal\n");
```

```
}
```

Input:
abc
abc
Output: Strings are equal

---

5. Count vowels and consonants

```
#include <stdio.h>

void main() {
   char str[100];
   int i, vowels = 0, consonants = 0;

   printf("Enter a string: ");
   gets(str);

   for (i = 0; str[i] != '\0'; i++) {
      char ch = str[i];
      if ((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z')) {
         ch = tolower(ch);
         if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u')
            vowels++;
         else
            consonants++;
      }
   }

   printf("Vowels: %d\nConsonants: %d\n", vowels, consonants);
}
```

Input: Hello

Output:
Vowels: 2
Consonants: 3

6. Convert lowercase to uppercase and vice versa

```
#include <stdio.h>

void main() {
   char str[100];
   int i;

   printf("Enter a string: ");
   gets(str);

   for (i = 0; str[i] != '\0'; i++) {
      if (str[i] >= 'a' && str[i] <= 'z')
         str[i] -= 32;
      else if (str[i] >= 'A' && str[i] <= 'Z')
         str[i] += 32;
   }

   printf("Converted string: %s\n", str);
}
```

Input: HeLLo
Output: Converted string: hEllO

---

7. Check if string is palindrome

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

```
void main() {
   char str[100];
   int i, len, flag = 0;

   printf("Enter a string: ");
   gets(str);

   len = strlen(str);
   for (i = 0; i < len / 2; i++) {
      if (str[i] != str[len - i - 1]) {
         flag = 1;
         break;
      }
   }

   if (flag)
      printf("Not a palindrome\n");
   else
      printf("Palindrome\n");
}
```

Input: madam
Output: Palindrome

8. Reverse a string

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

void main() {
   char str[100], rev[100];
   int i, len;

   printf("Enter a string: ");
   gets(str);
```

```
    len = strlen(str);
    for (i = 0; i < len; i++) {
        rev[i] = str[len - i - 1];
    }
    rev[i] = '\0';

    printf("Reversed string: %s\n", rev);
}
```

Input: hello
Output: Reversed string: olleh

9. Count words in a string

```
#include <stdio.h>

void main() {
    char str[100];
    int i, words = 1;

    printf("Enter a string: ");
    gets(str);

    for (i = 0; str[i] != '\0'; i++) {
        if (str[i] == ' ' && str[i+1] != ' ' && str[i+1] != '\0')
            words++;
    }

    printf("Number of words: %d\n", words);
}
```

Input: This is C program
Output: Number of words: 4

---

10. Find frequency of each character

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

void main() {
   char str[100];
   int freq[256] = {0}, i;

   printf("Enter a string: ");
   gets(str);

   for (i = 0; str[i] != '\0'; i++) {
      freq[(unsigned char)str[i]]++;
   }

   printf("Character frequencies:\n");
   for (i = 0; i < 256; i++) {
      if (freq[i] > 0)
         printf("'%c' = %d\n", i, freq[i]);
   }
}
```

Input: hello
Output:

Character frequencies:
'h' = 1
'e' = 1
'l' = 2
'o' = 1