Tutorial 4 – Character Strings – Suggested Answers

1. (**processString**)

```c
void processString(char *str, int *totVowels, int *totDigits)
{
  int i, size;

  *totVowels=0;
  *totDigits=0;
  i=0; size=0;
  while (str[i]!='\0'){
    size++;
    i++;
  }
  for (i=0; i < size; i++) {
    if (str[i] == 'a' || str[i] == 'e' ||
        str[i] == 'i' ||  str[i] == 'o' ||
        str[i] == 'u' || str[i] == 'A' ||
        str[i] == 'E' || str[i] == 'I' ||
        str[i] == 'O' || str[i] == 'U')
      (*totVowels)++;
    else if ( str[i] >= '0' &&  str[i] <= '9')
      (*totDigits)++;
  }
}
/*  another version */
/*
void processString2(char *str, int *totVowels, int *totDigits)
{
  int i,size;

  *totVowels = 0, *totDigits = 0;
  i=0; size=0;
  while (str[i]!='\0'){
    size++;
    i++;
  }
  for (i=0; i < size; i++) {
    if (*(str+i) == 'a' || *(str+i) == 'e' ||
        *(str+i) == 'i' || *(str+i) == 'o' ||
        *(str+i) == 'u' || *(str+i) == 'A' ||
        *(str+i) == 'E' || *(str+i) == 'I' ||
        *(str+i) == 'O' || *(str+i) == 'U')
      (*totVowels)++;
    else if ( *(str+i) >= '0' &&  *(str+i) <= '9')
      (*totDigits)++;
  }
}
*/
```

2. (**stringncpy**)

```c
char *stringncpy(char *s1, char *s2, int n)
{
  int k, h;

  for (k = 0; k < n; k++)  {
    if (s2[k] != '\0')
      s1[k] = s2[k];
    else
      break;
  }
  s1[k] = '\0';
  for (h = k; h < n; h++)
    s1[h] = '\0';
  return s1;
}
```

3. (**stringcmp**)

```c
int stringcmp(char *s1, char *s2)
{
  while (1) {
    if (*s1 == '\0' && *s2 == '\0')
      return 0;
    else if (*s1 == '\0')
      return -1;
    else if (*s2 == '\0')
      return 1;
    else if (*s1 < *s2)
      return -1;
    else if (*s1 > *s2)
      return 1;
    s1++;
    s2++;
  }
}
```

4. The program prints:

How are ya, sweetie?How are ya, sweetie?
Beat the clock.
eat the clock.
win a toy.
win a snoopy.
win
chat
hat
at
t

t
at
How are ya, sweetie?