**SFWRENG 2MP3 – Programming for Mechatronics - Fall 2018**

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| **Exercise 5 Solution** | **Submitted By: HARNEET SINGH, 400110275, singhh76** |
| **Question #** | **Answer** |
| #1 | #include <stdio.h>  void main()  {  float floatValue, \*ptrFloatValue;  int anInt, \*ptrAnInt;  char aChar, \*ptrAChar;    ptrFloatValue = &floatValue;  ptrAnInt = &anInt;  ptrAChar = &aChar;  puts("\n\*\*\*\* QUESTION #1 \*\*\*\*");  printf("\nPlease input a floating-point value: ");  scanf("%f", ptrFloatValue);  printf("Please input an integer: ");  scanf("%d", ptrAnInt);  printf("Please input a character: ");  scanf(" %c", ptrAChar);  puts("\n---- Floating Value ----");  printf("Address: \t%p\n", ptrFloatValue);  printf("Float Value: \t%f\n", \*ptrFloatValue);  printf("Memory size: \t%d\n", sizeof(\*ptrFloatValue));  puts("\n---- Integer ----");  printf("Address: \t%p\n", ptrAnInt);  printf("Integer Value: \t%d\n", \*ptrAnInt);  printf("Memory size: \t%d\n", sizeof(\*ptrAnInt));  puts("\n---- Character ----");  printf("Address: \t%p\n", ptrAChar);  printf("Character: \t%c\n", \*ptrAChar);  printf("Memory size: \t%d\n\n", sizeof(\*ptrAChar));  } |
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| #2 | #include <stdio.h>  #define length 100  void concatenate (char \*pStr1, char \*pStr2);  void main()  {  char string1[length], string2[length];  char \*ptrString1, \*ptrString2;  ptrString1 = string1;  ptrString2 = string2;  printf("Please enter first string: ");  scanf("%s", ptrString1);  printf("Please enter second string: ");  scanf("%s", ptrString2);  concatenate(ptrString1, ptrString2);  printf("\nConcatenated Result: %s\n", ptrString1);  }  void concatenate (char \*pStr1, char \*pStr2)  {  while (\*pStr1)  {  pStr1++;  }  while (\*pStr2)  {  \*pStr1 = \*pStr2;  \*pStr1++;  \*pStr2++;  }  \*pStr1 = '\0';  } |
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| #3 | #include <stdio.h>  #define total 100  void main ()  {  int num\_Tests, Count = 0;  int numbers[total] = {0}, \*ptrInt;  ptrInt = numbers;  printf("Enter (non-zero positive) number of integers that need to be tested: ");  scanf("%d", &num\_Tests);  if (0 <= num\_Tests <= 100)  {  for (int i = 0; i < num\_Tests; i++)  {  printf("Enter %d integer value:", i+1);  scanf("%d", ptrInt);  ptrInt++;  Count++;  }  }  ptrInt = ptrInt - Count;  int base = \*ptrInt;  int \*highAddress = ptrInt;  for (int j = 0; j < num\_Tests; j++)  {  if (\*ptrInt > base)  {  base = \*ptrInt;  highAddress = ptrInt;  }  ptrInt++;  }  printf("Largest Integer value = %d, located at %p\n", base, highAddress);  } |
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| #4 | #include <stdio.h>  #define length 1000  void main ()  {  char string[length], \*pString;  int num\_vowels = 0, num\_consonants = 0;  pString = string;  printf("Please enter a string: ");  scanf("%s", pString);  while (\*pString != '\0')  {  switch (\*pString)  {  case 'a':  case 'e':  case 'i':  case 'o':  case 'u':  num\_vowels++;  pString++;  break;  default:  num\_consonants++;  pString++;  }  }  printf("The string has %d consonants and %d vowels\n", num\_consonants, num\_vowels);  } |
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| #5 | #include <stdio.h>  #define length 1000  void main ()  {  int count = 0;  char string[length], \*pString;  pString = string;  printf("Please enter a string to reverse it: ");  scanf("%s", pString);  for (;\*pString != '\0'; pString++)  {  count++;  }  printf("Reversed String is: ");  while (count != -1)  {  printf("%c", \*pString);  pString--;  count--;  }  puts("");  } |
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