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| /\*  1. WAP to declare and initialize all data types e.g. int, float, char, double, long, short, long  double, long long and print their size (in Bytes) using the “sizeof” operator. [ “%lu”]  \*/  #include <stdio.h>  int main() {  // Declare and initialize variables  int intType = 42; // An integer  float floatType = 3.14; // A floating-point number  double doubleType = 2.71828; // A double-precision floating-point number  char charType = 'A'; // A character  long long longLongType = 1234567890; // A long long integer  short shortType = 32767; // A short integer  long double longDoubleType = 1.234567890123456; // A long double  // Print sizes of each data type  printf("Size of int: %zu bytes\n", sizeof(intType));  printf("Size of float: %zu bytes\n", sizeof(floatType));  printf("Size of double: %zu bytes\n", sizeof(doubleType));  printf("Size of char: %zu byte\n", sizeof(charType));  printf("Size of long long: %zu bytes\n", sizeof(longLongType));  printf("Size of short: %zu bytes\n", sizeof(shortType));  printf("Size of long double: %zu bytes\n", sizeof(longDoubleType));  return 0;  } |
| **Output :**  Size of int: 4 bytes  Size of float: 4 bytes  Size of double: 8 bytes  Size of char: 1 byte  Size of long long: 8 bytes  Size of short: 2 bytes  Size of long double: 12 bytes  Process returned 0 (0x0) execution time : 0.569 s  Press any key to continue. |

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| /\*  2. WAP to print your name, roll number, branch, marks which are stored in appropriate data  types. [ char name[]=”xyzw”]  \*/  #include <stdio.h>  #include <string.h> // Include this header for string functions  // Define the student structure  struct Student {  char name[50]; // Store student name (up to 50 characters)  char rollNumber[10]; // Store roll number (up to 10 characters)  char branch[10]; // Store branch (up to 10 characters)  float marks; // Store marks (floating-point value)  };  int main() {  struct Student s; // Create a structure variable for a student  // Initialize student information  strcpy(s.name, "Prashant Ranjan"); // Set student name  strcpy(s.rollNumber, "24MC3035"); // Set roll number  strcpy(s.branch, "MATHEMATICS AND COMPUTING "); // Set branch  s.marks = 100.0; // Set marks  // Display student information  printf("Name: %s\n", s.name); // Print student name  printf("Roll Number: %s\n", s.rollNumber); // Print roll number  printf("Branch: %s\n", s.branch); // Print branch  printf("Marks: %.2f\n", s.marks); // Print marks with 2 decimal places  return 0; // Exit program  } |
| **Output :**  Name: Prashant Ranjan  Roll Number: 24MC3035  Branch: MATHEMATICS  Marks: 100.00  Process returned 0 (0x0) execution time : 0.673 s  Press any key to continue. |

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| /\*  3. WAP to find Fahrenheit of a Celsius. formula:- “C\*9/5+32”  \*/  #include <stdio.h>  int main() {  float celsius, fahrenheit;  // Input temperature in Celsius  printf("Enter temperature in Celsius: ");  scanf("%f", &celsius);  // Convert to Fahrenheit using the formula: Fahrenheit = Celsius \* 9/5 + 32  fahrenheit = celsius \* 9/5 + 32;  // Display temperature in Fahrenheit  printf("Temperature in Fahrenheit: %.2f\n", fahrenheit);  return 0;  } |
| **Output :**  Enter temperature in Celsius: 10  Temperature in Fahrenheit: 50.00  Process returned 0 (0x0) execution time : 3.580 s  Press any key to continue. |

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| /\*  4. WAP to find Fahrenheit of a Celsius. formula:- “C\*(9/5)+32”  \*/  #include <stdio.h>  int main() {  float celsius, fahrenheit;  // Input temperature in Celsius  printf("Enter temperature in Celsius: ");  scanf("%f", &celsius);  // Convert to Fahrenheit using the formula: Fahrenheit = (Celsius \* 9/5) + 32  fahrenheit = (celsius \* 9/5) + 32;  // Display temperature in Fahrenheit  printf("Temperature in Fahrenheit: %.2f\n", fahrenheit);  return 0;  } |
| **Output :**  Enter temperature in Celsius: 25  Temperature in Fahrenheit: 77.00  Process returned 0 (0x0) execution time : 5.672 s  Press any key to continue. |

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| /\*  5 (i). WAP to find the value of addition of two numbers (i) int  \*/  #include <stdio.h>  int main() {  int number1, number2, sum; // Declare variables for input and result  // Input two integers  printf("Enter two integers: ");  scanf("%d %d", &number1, &number2);  // Calculate the sum  sum = number1 + number2;  // Display the result  printf("%d + %d = %d\n", number1, number2, sum);  return 0;  } |
| **Output :**  Enter two integers: 55  25  55 + 25 = 80  Process returned 0 (0x0) execution time : 8.417 s  Press any key to continue. |

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| /\*  5(ii). WAP to find the value of addition of two numbers (ii) double.  \*/  #include <stdio.h>  int main() {  double number1, number2, sum; // Declare variables for input and result  // Input two numbers  printf("Enter two numbers: ");  scanf("%lf %lf", &number1, &number2);  // Calculate the sum  sum = number1 + number2;  // Display the result  printf("Sum: %.2lf\n", sum);  return 0;  } |
| **Output :**  Enter two numbers: 25.054  75.109  Sum: 100.16  Process returned 0 (0x0) execution time : 15.566 s  Press any key to continue. |

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| /\*  6. WAP to find the division of two two numbers (i) int (ii) double (iii) int/double (iv)  double/int.  \*/  #include <stdio.h>  int main() {  int num1, num2; // Declare variables for integer division  double num3, num4; // Declare variables for double division  // Input two integers  printf("Enter two integers: ");  scanf("%d %d", &num1, &num2);  // Calculate integer division  int intResult = num1 / num2;  // Input two doubles  printf("Enter two decimal numbers: ");  scanf("%lf %lf", &num3, &num4);  // Calculate double division  double doubleResult = num3 / num4;  // Display results  printf("Integer division result: %d\n", intResult);  printf("Double division result: %.2lf\n", doubleResult);  // Calculate mixed division (double/int)  double mixedResult = num3 / num2;  printf("Mixed division (double/int) result: %.2lf\n", mixedResult);  // Calculate mixed division (int/double)  mixedResult = num1 / num4;  printf("Mixed division (int/double) result: %.2lf\n", mixedResult);  return 0;  } |
| **Output :**  Enter two integers: 200  15  Enter two decimal numbers: 209.10  27.95  Integer division result: 13  Double division result: 7.48  Mixed division (double/int) result: 13.94  Mixed division (int/double) result: 7.16  Process returned 0 (0x0) execution time : 28.438 s  Press any key to continue. |
| /\*  7. WAP to take an integer array of 5 elements and print its value at indices (i) 0, (ii)3, (iii)4  \*/  #include <stdio.h>  int main() {  int myArray[5]; // Declare an integer array of size 5  // Input 5 integers from the user and store them in the array  printf("Enter 5 integers:\n");  for (int i = 0; i < 5; ++i) {  scanf("%d", &myArray[i]);  }  // Print the values at specific indices  printf("Value at index 0: %d\n", myArray[0]);  printf("Value at index 3: %d\n", myArray[3]);  printf("Value at index 4: %d\n", myArray[4]);  return 0;  } |
| **Output :**  Enter 5 integers:  5  15  25  30  55  Value at index 0: 5  Value at index 3: 30  Value at index 4: 55  Process returned 0 (0x0) execution time : 16.717 s  Press any key to continue. |

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| /\*  8. WAP to show BODMAS rule using integer and double.  \*/  #include <stdio.h>  int main() {  // Integer examples  int intResult1 = 7 + (8 - 3 \* 2); // Result: 9  int intResult2 = 25 - 5 / (3 + 2); // Result: 20  int intResult3 = 10 + 6 \* (1 + 10); // Result: 76  int intResult4 = 5 \* (3 + 2) + 5; // Result: 30  int intResult5 = 2 \* (105 + 206) - 550 / 5; // Result: 412  // Double examples  double doubleResult1 = 1.0 / 3.0 \* (6.0 + 8.0 \* 3.0 - 2.0); // Result: 65.04  double doubleResult2 = 18.0 / 10.0 - 4.0 + 32.0 / (4.0 + 10.0 / 2.0 - 1.0); // Result: 1.8  // Print results  printf("Integer results:\n");  printf("1. %d\n2. %d\n3. %d\n4. %d\n5. %d\n", intResult1, intResult2, intResult3, intResult4, intResult5);  printf("\nDouble results:\n");  printf("1. %.2lf\n2. %.2lf\n", doubleResult1, doubleResult2);  return 0; // Exit program  } |
| **Output :**  Integer results:  1. 9  2. 24  3. 76  4. 30  5. 512  Double results:  1. 9.33  2. 1.80  Process returned 0 (0x0) execution time : 0.755 s  Press any key to continue. |

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