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| Sheldon Lee Smuts C++ | 2021 | |
|  | | Exercise File |

**22-Jan-2021**

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| **Program Code:**  //Author Name: Sheldon Lee Smuts  //Date: 22-jan-2021  //Description: This is my first program in C++ 1A.cpp  #include <iostream>  int main ()  {  std::cout <<"Exercise 2 - without using namespace std"; // need to use std  } |
| **Output:** |

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| **Program Code:**  //Author Name: Sheldon Lee Smuts  //Date: 22-jan-2021  //Description: Exercise 3 1B.cpp  #include <iostream>  using namespace std;  int main ()  {  cout <<"Exercise 3 - using namespace std";  } |
| **Output:** |

**28 January 2021.**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 28-jan-2021  Description: Exercise 3: 2A.cpp  \*/  #include <iostream>  using namespace std;  int main()  {  string name ="MDIS";  char str []="C++ is fun";  int b=10;  int c=20;  int a=b+c;  cout << "My School name is: "<<name<<endl;  cout <<"The string str is: "<<str<<endl;  cout <<"The vaulue of a is: "<<a<<endl;  cout <<"The vaulue of b is: "<<b<<endl;  cout <<"The vaulue of c is: "<<c<<endl;    } |
| **Output:** |

**28 January 2021.**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 28-jan-2021  Description: Exercise 3: 2B.cpp  \*/  #include <iostream>  using namespace std;  int main()  {  char name [50];  cout << "Please enter your name: ";  cin >>name;  int age;  cout << "Please enter your age: ";  cin >>age;  cout << "Your name is: " <<name << endl;  cout << "Your age is: " <<age << endl;  } |
| **Output:** |

**03 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 03-Feb-2021  Description: Exercise 4 : 1A.cpp  \*/  #include <iostream>  using namespace std;  int main ()  {  int checking;  unsigned int miles;  long days;    checking = -20;  miles = 4276;  days = 189000;    cout << "We have made a long journey of " << miles;  cout <<" miles.\n",  cout << "our checken account balance is " <<checking;  cout << "\nAbout " << days << " days ago Columbus ";  cout << "stood on this spot. \n";  return 0;  } |
| **Output:** |

**03 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 03-Feb-2021  Description: Exercise 4 BMI Calculator : 3B.cpp  \*/  // BMI = Weight \ (Height \* Height)  #include <iostream>  using namespace std;  int main ()  {  float height;  int weight;  float bmi;  cout << "please enter your weight in KG ";  cin >> weight;  cout << "Your Weight is: " << weight << " KG"<< endl;  cout << "Please enter your height in Meters ";  cin >> height;  cout << "Your Height is: " << height << " Meters" << endl;  height = height \* height;  bmi = weight / height;  cout << endl;  cout << "Your BMI is " <<bmi <<endl;  cout << "\nUnderweight = smaller than 18.5 \n \nNormal weight = 18.5 to 24.9 \n \nOverweight = 25 to29.9 \n \nObesity = BMI of 30 or greater" ;  return 0;  } |
| **Output:** |

**03 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 03-Feb-2021  Description: Exercise 4.1: 3C.cpp  \*/  // This Program demonstrates the string class  # include <iostream>  # include <string>  using namespace std;  int main()  {  string bookTitle;  bookTitle = "Wheels of Fury";  cout << "My favorite book is " << bookTitle <<endl;  return 0;  } |
| **Output:** |

**03 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 03-Feb-2021  Description: Exercise 4.2: 3D.cpp  \*/  // This Program uses two floating-point data types, float and double.  # include <iostream>  using namespace std;  int main()  {  float distance = 1.496E8; // in Kilometers  double mass = 1.989E30; // in Kilograms    cout << "The Sun is " << distance << "Kilometers away. \n";  cout << "the Sun\s mass is " << mass << "Kilograms. \n";  return 0;  } |
| **Output:** |

**03 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 03-Feb-2021  Description: Exercise 4.3: 3E.cpp  \*/  # include <iostream>  using namespace std;  int main()  {  float gallons, liters;    cout << "Enter number of gallons: ";  cin >> gallons; //Read the inputs from the user    liters = gallons \* 3.7854; // converts to liters    cout << "Liters: " << liters << endl;    return 0;  } |
| **Output:** |

**03 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 03-Feb-2021  Description: Exercise 4.4: 3F.cpp  \*/  // This program uses Boolean variables.  # include <iostream>  using namespace std;  int main()  {  bool boolValue;  boolValue = true;  cout << boolValue << endl;    boolValue = false;  cout << boolValue << endl;  return 0;  } |
| **Output:** |

**03 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 03-Feb-2021  Description: Exercise 4.5: 3G.cpp  \*/  // This program calculate hourly wages, including overtime.  # include <iostream>  using namespace std;  int main()  {  double basePayRate = 18.25, // Base Pay Rate.  overtimePayRate = 27.38, // Overtime Pay Rate.  regularHours = 40.0, // Regular hours worked.  overtimeHours = 10, // Overtime hours worked.  regularWages, // Computed regular wage.  overtimeWages, // Computed overtime wage.  totalWages; // Computed total wages.    // Calculate regular wages  regularWages = basePayRate \* regularHours;    // Calculate Overtime Wages  overtimeWages = overtimePayRate \* overtimeHours;    // Calculate total wages  totalWages = regularWages + overtimeWages;    // Display total wages  cout << "Wages for this week are $ " << totalWages << endl;  return 0;  } |
| **Output:** |

**05 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 05-Feb-2021  Description: Exercise 5.1: 5A.cpp  \*/  // This program displays the values of true and false states.  #include <iostream>  using namespace std;  int main()  {  bool trueValue, falseValue;  int x = 5, y = 10;    trueValue = (x < y);  falseValue = (y == x);    cout << "True is " << trueValue << endl;  cout << "False is " << falseValue << endl;  return 0;  } |
| **Output:** |

**05 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 05-Feb-2021  Description: Exercise 5.2: 5B.cpp  \*/  // This Program correctly averages 3 test scores.  #include <iostream>  #include <iomanip>  using namespace std;  int main()  {  int score1, score2, score3;  double average;    // Get the three test scores  cout << "Enter 3 test scores and i will average them: ";  cin >> score1 >> score2 >> score3;    // Calculate and display the average score.  average = (score1 + score2 + score3) / 3.0;  cout << "Your average is " << average << endl;    // If the average is equals 100, congratulate the user.  if (average == 100)  {  cout << "Congrations! ";  cout << "That's a perfect score!\n";  }  return 0;  } |
| **Output:** |

**05 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 05-Feb-2021  Description: Exercise 5.3: 5C.cpp  \*/  // This Program uses the modulus operator to determine  // if a number is odd or even. If the number is evenly divisible  // by 2, it is an even number. A remainder indicates it is odd.  #include <iostream>  using namespace std;  int main()  {  int number;    cout << "Enter an interger and i will tell you if it \n";  cout << "is odd or even. ";  cin >> number;    if (number % 2 == 0)  cout << number << " is even. \n";  else  cout << number << " is odd. \n";  return 0;  } |
| **Output:** |

**05 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 05-Feb-2021  Description: Exercise 5.4: 5D.cpp  \*/  // This Program correctly averages 3 test scores.  #include <iostream>  #include <iomanip>  using namespace std;  int main()  {  int score1, score2, score3;  double average;    // Get the three test scores  cout << "Enter 3 test scores and i will average them: ";  cin >> score1 >> score2 >> score3;    // Calculate and display the average score.  average = (score1 + score2 + score3) / 3.0;  cout << "Your average is " << average << endl;    // If the average is equals 100, congratulate the user.  if (average >= 80)  cout << "You got an A grade \n ";  else if (average >= 70)  cout << "You got an B grade \n ";  else if (average >= 60)  cout << "You got an C grade \n ";  else if (average >= 50)  cout << "You got an D grade \n ";  else  cout << "You FAIL the Exam \n ";  return 0;  } |
| **Output:** |

**05 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 05-Feb-2021  Description: Exercise 5.5: 5E.cpp  \*/  // This program makes sure that the divisor is not  // equal to 0 before it oerforms a divide operation.  #include <iostream>  using namespace std;  int main()  {  double num1, num2, quotient;    // Get the two numbers  cout << "Enter two Numbers: ";  cin >> num1 >> num2;    // If num2 is not zero, perform the division.  if (num2 != 0)  {  quotient = num1 / num2;  cout << "The quotient of " << num1 << " divided by " << num2 << " is " << quotient << ".\n";  }  else  {  cout << "Division by zero is not possible. \n"  << "PLease run the program again and enter "  << "a number other than zero. \n";  }  return 0;  } |
| **Output:** |

**05 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 05-Feb-2021  Description: Exercise 5.6: 5F.cpp  \*/  // This program demonstrates the use of the switch statement.  // The Program simply tells the user what the character they entered.  #include <iostream>  using namespace std;  int main()  {  char choice;    cout << "Enter A, B, or C: ";  cin >> choice;    switch (choice)  {  case 'A' :cout << "You entered A.\n";  break;  case 'B' :cout << "You entered B.\n";  break;  case 'C' :cout << "You entered C.\n";  break;  default: cout << "You did not enter A, B, or C!\n";  }  return 0;  } |
| **Output:** |

**05 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 05-Feb-2021  Description: Exercise 5.6: 5F2.cpp  \*/  // This program demonstrates the use of the switch statement.  // The Program simply tells the user what the character they entered.  #include <iostream>  using namespace std;  int main()  {  int day;    cout << "Pleae enter a number from 1 to 7 ";  cin >> day;    switch (day)  {  case 1 :cout << "Monday \n";  break;  case 2 :cout << "Tuesday \n";  break;  case 3 :cout << "Wednesday \n";  break;  case 4 :cout << "Thursday \n";  break;  case 5 :cout << "Friday \n";  break;  case 6 :cout << "Saturday \n";  break;  case 7 :cout << "Sunday \n";  break;  default: cout << "You did not enter a number from 1 to 7 please try again\n";  }  return 0;  } |
| **Output:**  **C:\Users\Sheldon\OneDrive - MANAGEMENT DEVELOPMENT INSTITUE OF SINGAPORE\1) Foundation Diploma in Information Technology\Tearm 2\Classes\Programming Principles And Development\Class Work\C++ Code\Exercise 5\5F2.png** |

**18 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 18-Feb-2021  Description: Exercise 6.1 : 6A.cpp  \*/  //Switch Calculator  #include <iostream>  using namespace std;  int main()  {  char o;  float num1, num2;  cout << "Enter an operator (+, -, \*, /): ";  cin >> o;  cout << "Enter two operands: ";  cin >> num1 >> num2;  switch (o)  {  case '+':  cout << num1 << " + " << num2 << " = " << num1+num2;  break;  case '-':  cout << num1 << " - " << num2 << " = " << num1-num2;  break;  case '\*':  cout << num1 << " \* " << num2 << " = " << num1\*num2;  break;  case '/':  cout << num1 << " / " << num2 << " = " << num1/num2;  break;  default:  //operator doesn't match any case constant (+,-,\*;/)  cout << "Erro! operator is not correct";  break;  }  return 0;  } |
| **Output:** |

**18 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 18-Feb-2021  Description: Exercise 6.2 : 6B.cpp  \*/  // This is a menu-driven program uses an if/eles statement to carry  // out the correct set of actions based on the user's menu choice.  #include <iostream>  #include <iomanip>  using namespace std;  int main()  {  // Constants for menbership rates  const double ADULT\_RATE = 40.0;  const double CHILD\_RATE = 20.0;  const double SENIOR\_RATE = 30.0;  int choice; // menu choice  int months; // Number of months  double charges; //Monthly charges  // Display the menu and get the user's to choice  cout << "Health club Membership Menu \n\n";  cout << "1. Standard Adult Membership \n";  cout << "2. Child Membership \n";  cout << "3. Senior Citizen Membership \n";  cout << "4. Quit the Program \n \n";  cout << "Enter your choice: ";  cin >> choice;  // Set the numeric output formatting  cout << fixed << showpoint << setprecision (2);  // Use the menu selection to execute the correct set of actions  if (choice == 1)  {  cout << "\nFor how many months? ";  cin >> months;  charges = months \* ADULT\_RATE;  cout << "The total charges are $" << charges << endl;  }  else if (choice == 2)  {  cout << "\nFor how many months? ";  cin >> months;  charges = months \* CHILD\_RATE;  cout << "The total charges are $" << charges << endl;  }  else if (choice == 3)  {  cout << "\nFor how many months? ";  cin >> months;  charges = months \* SENIOR\_RATE;  cout << "The total charges are $" << charges << endl;  }  else if (choice != 4)  {  cout << "The valid choice are 1 through 4. Run the \n"  << "Program again and select one of those. \n";  }  return 0;  } |
| **Output:** |

**18 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 18-Feb-2021  Description: Exercise 6.3 : 6C.cpp  This Program determines whether or not an applicant qualifies for a loan.  To qualify they must make at least $35,00 a year or have been at thier current job for more than 5 years.  It uses the ! logical operator to reverse the logic of the if statement.  \*/  #include <iostream>  using namespace std;  int main()  {  double income; // Annual income  int years; // Years at the current job  //Get annual income and years on the job  cout << "What is your annual income? ";  cin >> income;  cout << "How many years have you worked at your current job? ";  cin >> years;  // Determine if the applicant qualifies for a loan  if (!((income >= 35000) ||(years >5))) // Uses logical NOT  {  cout << "You must earn at least $35,00 or have been employed\n";  cout << "for more than 5 years to qualify for a loan.\n";  }  else  cout <<"You qualify for a loan.\n";  return 0;  } |
| **Output:** |

**18 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 18-Feb-2021  Description: Exercise 6.4 : 6D.cpp  This Program determines whether or not an applicant qualifies for a loan.  To qualify they must make at least $3,000 a month or have been at thier current job for more than 3 years.  It uses the ! Logical operator to reverse the logic of the if statement.  \*/  #include <iostream>  using namespace std;  int main()  {  double income; // Monthly income  int years; // Years at the current job  //Get monthly income and years on the job  cout << "What is your monthly income? ";  cin >> income;  cout << "How many years have you worked at your current job? ";  cin >> years;  // Determine if the applicant qualifies for a loan  if (!((income >= 3000) && ( years > 3 ))) // Uses logical NOT  {  cout << "You must earn at least $3,000 a month and have been employed\n";  cout << "for more than 3 years to qualify for a loan.\n";  }  else  cout <<"You qualify for a loan.\n";  return 0;  } |
| **Output:** |

**18 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 18-Feb-2021  Description: Exercise 6.5 : 6E.cpp  This program is to decide to marry the girl based on if she is Pretty or she is rich..  \*/  #include <iostream>  using namespace std;  int main()  {  char pretty, rich; // pretty T or F, rich T or F.  // Is she pretty ?  cout << "Answer the following questions with Y or N\n";  cout << "Is she Pretty? : ";  cin >> pretty;  cout << "Is she Rich? : ";  cin >> rich;    // Determine the outcome  if ((pretty == 'Y') || (rich == 'Y'))// Uses logical AND  cout << "\nYou should get married right away!!!";  else  {  cout << "Don’t get married";  }  return 0;  } |
| **Output:** |

**18 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 18-Feb-2021  Description: Exercise 7.1 : 7A.cpp  this program demonstrates the ++ and the -- operators  \*/  #include <iostream>  using namespace std;  int main()  {  int num = 4; // num starts out with 4    // Display the value in num  cout << "The variable num is " << num <<endl;  cout << "I will now increment num. \n\n";    // Use postfix ++ to incement num  num++;  cout << "Now the variable num is " << num << endl;  cout << "I will now increment num. \n\n";    // Use prefix ++ to incement num  ++num;  cout << "Now the variable num is " << num << endl;  cout << "I will now decrement num. \n\n";      // Use postfix ++ to decrement num  num--;  cout << "Now the variable num is " << num << endl;  cout << "I will now decrement num. \n\n";    // Use prefix ++ to decrement num  --num;  cout << "Now the variable num is " << num << endl;  return 0;  } |
| **Output:** |

**18 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 18-Feb-2021  Description: Exercise 7.2 : 7B.cpp  this program demonstrates the postfix and prefix modes of the increment and decrement operators.  \*/  #include <iostream>  using namespace std;  int main()  {  int num = 4;    // Illustrate postfix and prefix ++ operator  cout << num << " "; // Displays 4  cout << num++ << " "; // Displays 4, then adds 1 to num  cout << num <<" "; // Displays 5  cout << ++num << "\n\n"; // Adds 1 to num, then displays 6    // Illustrate postfix and prefix -- operator  cout << num << " "; // Displays 6  cout << num-- << " "; // Displays 6, then adds 1 to num  cout << num <<" "; // Displays 5  cout << --num << "\n\n"; // Adds 1 to num, then displays 4      return 0;  } |
| **Output:** |

**18 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 18-Feb-2021  Description: Exercise 7.3 : 7C.cpp  this program demonstrates a simple while loop.  \*/  #include <iostream>  using namespace std;  int main()  {  int number = 1;  while (number <=5)  {  cout << "Hello ";  number++;  }  cout << "\nThat's all\n";    return 0;  } |
| **Output:** |

**18 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 18-Feb-2021  Description: Exercise 7.4 : 7D.cpp  this program demonstrates a simple while loop.  \*/  #include <iostream>  using namespace std;  int main()  {  int number = 0;  while (number <=9)  {  cout << ++number << endl;  }  cout << "\nThat's all\n";    return 0;  } |
| **Output:** |

**18 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 18-Feb-2021  Description: Exercise 7.5 : 7E.cpp  this program calculates the number of soccer teams a youth league may create from the number of availble players.  Input validation is done with while loops.  \*/  #include <iostream>  using namespace std;  int main()  {  int players, // Number of available players  teamPlayers, // Number of desired players per team  numTeams, // Number of teams  leftOver; // Number of players left over    // Get the number of players per team  cout << "How many players do you with per team?\n";  cout << "(Enter a value in the range 9 - 15): ";  cin >> teamPlayers;    // Validtae the input  while (teamPlayers < 9 || teamPlayers > 15)  {  cout << "Team size should be 9 to 15 players.\n";  cout << "How many players do you wish per team? ";  cin >> teamPlayers;  }    // Get the number of players available  cout << "How many players are available? ";  cin >> players;    // Validate the input  while (players <=0)  {  cout << "Please enter a positive number: ";  cin >> players;  }    // Calculate the number of teams  numTeams = players / teamPlayers;  // Calculate the number of leftover players  leftOver = players % teamPlayers;    // Display the results  cout << "\nThere will be " << numTeams << " teams with ";  cout << leftOver << " Players left over.\n";    return 0;  } |
| **Output:** |

**18 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 18-Feb-2021  Description: Exercise 7.6 : 7F.cpp  this program is showing the do while loop.  \*/  #include <iostream>  using namespace std;  int main()  {  // for loop execution  int a = 10; // local variable decleration    do {  cout << "The value of the a is: " << a << endl;  a = a + 1;  }  while (a < 10);    return 0;  } |
| **Output:** |

**18 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 18-Feb-2021  Description: Exercise 7.7 : 7G.cpp  this program is asking for your name and age then printing it out based on how old you are.  \*/  #include <iostream>  using namespace std;  int main()  {  string name; // Your name.  int age ; // Your age.  int t = 0;    // Ask for your name.  cout << "What is your Name? ";  cin >> name;    // Ask for Age.  cout << "\nWhat is your Age? ";  cin >> age;    // Display name  if (age >= 21){  cout << name << endl << "You are a Adult";  }  else  cout << name << endl << "Your a still a child";  return 0;  } |
| **Output:** |

**22 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 22-Feb-2021  Description: Exercise 8.1 : 8A.cpp  this program is showing the forloop.  \*/  #include <iostream>  using namespace std;  int main()  {  // for loop execution  for (int a = 10; a < 20; a = a + 1){  cout << "Value of a: " << a << endl;  }  return 0;  } |
| **Output:**  C:\Users\Sheldon\AppData\Local\Microsoft\Windows\INetCache\Content.Word\8A.1.png |

**22 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 22-Feb-2021  Description: Exercise 8.2 : 8B.cpp  this program is showing the forloop.  \*/  #include <iostream>  using namespace std;  int main()  {  // for loop execution  for (int a = 10; a < 60; a = a + 10){  cout << "Value of a: " << a << endl;  }  return 0;  } |
| **Output:** |

**22 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 22-Feb-2021  Description: Exercise 8.3 : 8C.cpp  this program is showing the forloop.  \*/  #include <iostream>  using namespace std;  int main()  {  // for loop execution  for (int a = 50; a > 0; a = a - 10){  cout << "Value of a: " << a << endl;  }  return 0;  } |
| **Output:** |

**22 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 22-Feb-2021  Description: Exercise 8.4 : 8D.cpp  This program uses a for loop to display the numbers 1-5 and their squares.  \*/  #include <iostream>  #include <iomanip>  using namespace std;  int main()  {  int num;  cout << "Number Square\n";  cout << "--------------\n";    for (num = 1; num <= 5; num++)  cout << setw(4) << num << setw(7) << (num \* num) << endl;  return 0;  } |
| **Output:** |

**22 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 22-Feb-2021  Description: Exercise 8.5 : 8E.cpp  This program uses a for loop to display the numbers 1-10 and their squares and Cubes.  \*/  #include <iostream>  #include <iomanip>  using namespace std;  int main()  {  int num;  cout << "Number" << setw(7) << "Square" << setw(7) << "Cube" <<endl;  cout << "------" << setw(7) << "------" << setw(7) << "----" <<endl;    for (num = 1; num <= 10; num++)  cout << setw(4) << num << setw(7) << (num \* num) << setw(7) << (num \* num \* num) << endl;  return 0;  } |
| **Output:** |

**22 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 22-Feb-2021  Description: Exercise 8.6 : 8F.cpp  This program takes daily sales figures over a period of time  and calculates their total. It then uses this total to compute the average daily sales.  \*/  #include <iostream>  #include <iomanip>  using namespace std;  int main()  {  int numDays; // Numbers of days.  double dailySales, // The sales amount for a single day.  totalSales = 0.0, // Accumulator, initialized with 0.  averageSales; // The average daily sales amount.    // Get the number of days.  cout << "For how many days do you have sales figures? ";  cin >> numDays;    // Get the sales for each day and accumulate a total.  for (int day = 1; day <= numDays; day++) // Day is the counter.  {  cout << "Enter the sales for day " << day << ": ";  cin >> dailySales;  totalSales += dailySales; // Accumulate the running total.  }  // Compute the average daily sales.  averageSales = totalSales / numDays;    // Display the total sales and average daily sales.  cout << fixed << showpoint << setprecision(2);  cout << "\nTotal sales: $" << setw(8) << totalSales;  cout << "\nAverage daily sales: $" << setw(8) << averageSales << endl;  return 0;  } |
| **Output:** |

**22 February 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 22-Feb-2021  Description: Exercise 8.7 : 8.7.cpp  This program takes daily sales figures over a period of time  and calculates their total. It then uses this total to compute the average daily sales.  \*/  #include <iostream>  #include <iomanip>  using namespace std;  int main()  {  int numStudents; // Numbers of Students.  double score, // The score of each student.  totalScore = 0.0, // Accumulator, initialized with 0.  averageScore; // The average score.    // Get the number of students.  cout << "For how many students do you have scores for? ";  cin >> numStudents;    // Get the score for each student and accumulate a total.  for (int S = 1; S <= numStudents; S++) // S is the Student counter.  {  cout << "Enter the score for Student " << S << ": ";  cin >> score;  totalScore += score; // Accumulate the running total.  }  // Compute the average Score.  averageScore = totalScore / numStudents;      // Display the average score.  cout << fixed << showpoint << setprecision(2);  cout << "\nTotal score: " << setw(8) << totalScore;  cout << "\nAverage score is: " << setw(8) << averageScore;  return 0;  } |
| **Output:** |

**01 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 01- March -2021  Description: Exercise 9.1 : 9.1.cpp  This program demonstrates the Sentinel.  \*/  #include <iostream>  using namespace std;  int main()  {  int game = 1, // Game Counter  points, // Holds number of points for specific game  total = 0; // Accumulates total points for all games    // Read in the points for game 1  cout << "Enter the number of points your team has earned\n";  cout << "so far this seasion. then enter -1 when finished.\n\n";  cout << "Enter the points for the game " << game << ": ";  cin >> points;    // loop as long as the end sentinel has not yet been entered  while (points != -1)  {  // Add point just read in to the accumulator  total += points;    // Enter the points for the next game  cout << "Enter the points for the game " << ++game << ": ";  cin >> points;  }  // Display the total points  cout << "\nThe total points are " << total << endl;  return 0;  } |
| **Output:** |

**01 March 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 01- March -2021  Description: Exercise 10.1 : 10.1.cpp  This program demonstrates the use of Arrays.  \*/  #include <iostream>  using namespace std;  int foo [] = {16, 2, 77, 40, 12071};  int n, result = 0;  int main()  {  for ( n=0; n<5; ++n )  {  result += foo[n];  }  cout << result;    return 0;  } |
| **Output:** |

**01 March 2021**

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| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 01- March -2021  Description: Exercise 10.2 : 10.2.cpp  This program calculates the total age of 6 students  \*/  #include <iostream>  using namespace std;  int age [] = {22, 23, 25, 27, 27, 28};  int n, result = 0;  int main()  {  for ( n=0; n<6; ++n )  {  result += age[n];  }  cout << result;    return 0;  } |
| **Output:** |

**01 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 01- March -2021  Description: Exercise 10.3 : 10.3.cpp  This program is for Multidimensional Array.  \*/  #include <iostream>  using namespace std;  #include <iomanip>  using std::setw;  int main()  {  int n[10]; // n is an array of 10 integers.    // intialize elements of array n to 0  for ( int i = 0; i < 10; i++ ){  n[ i ] = i + 100; // Set element at locasion i to i + 100  }  cout << "Element" << setw(13) << "Value" << endl;    // Output each array element's value  for ( int j = 0; j < 10; j++ ){  cout << setw( 7 ) << j << setw( 13 ) << n[ j ] << endl;  }    return 0;  } |
| **Output:** |

**01 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 01- March -2021  Description: Exercise 10.4 : 10.4.cpp  This program is for Multidimensional Array.  \*/  #include <iostream>  using namespace std;  #include <iomanip>  using std::setw;  int main()  {  int n[12]; // n is an array of 10 integers.    // intialize elements of array n to 0  for ( int i = 0; i < 13; i++ ){  n[ i ] = i \* 12; // Set element at locasion i to i + 100  }  cout << "Element" << setw(13) << "Value" << endl;    // Output each array element's value  for ( int j = 1; j < 13; j++ ){  cout << setw( 7 ) << j << setw( 13 ) << n[ j ] << endl;  }    return 0;  } |
| **Output:** |

**08 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 08- March -2021  Description: Exercise 11.1 : 11.1.cpp  This program is for Library Functions.  \*/  #include <iostream>  #include <cmath>  using namespace std;  int main()  {  double number, squareRoot;  cout << "Enter a Number: ";  cin >> number;    // sqrt() is a library function to calculate square root  squareRoot = sqrt(number);  cout << "Square root of " << number << " = " << squareRoot;  return 0;  } |
| **Output:** |

**08 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 08- March -2021  Description: Exercise 11.2 : 11.2.cpp  This program is to find the slop.  \*/  #include <iostream>  #include <cmath>  using namespace std;  int main()  {  int a,b,c;  cout << "Please enter the value for a: ";  cin >> a;  cout << "\nPlease enter the value for b: ";  cin >> b;    //  cout << endl,  c = sqrt((pow(a,2)+(pow(b,2))));    cout << "C = " << c;  return 0;  } |
| **Output:** |

**08 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 08- March -2021  Description: Exercise 11.3 : 11.3.cpp  This program is to show user defined function.  \*/  #include <iostream>  using namespace std;  // Function prototype (declaration)  int sum(int, int);  int main()  {  int num1, num2, num3;  cout << "Enter two numbers to add: ";  cin >> num1 >> num2;    // Function call  num3 = sum(num1, num2);  cout << "Sum = " << num3;  return 0;  }  // Function definition  int sum(int a, int b)  {  int add;  add = a + b;    return add;  } |
| **Output:** |

**08 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 08- March -2021  Description: Exercise 11.4 : 11.4.cpp  This program is to multiply two numbers.  \*/  #include <iostream>  using namespace std;  // Function prototype (declaration)  int sum(int, int);  int main()  {  int num1, num2, num3;  cout << "Enter two numbers to Times: ";  cin >> num1 >> num2;    // Function call  num3 = sum(num1, num2);  cout << "Times = " << num3;  return 0;  }  // Function definition  int sum(int a, int b)  {  int times;  times = a \* b;    return times;  } |
| **Output:** |

**08 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 08- March -2021  Description: Exercise 11.5 : 11.5.cpp  This program is to add two numbers together.  \*/  #include <iostream>  using namespace std;  int add (int a, int b){  int r;  r = a + b;  return r;  }  int main()  {  int z;  z = add (3,3);  cout << "The result is: " << z;  return 0;  } |
| **Output:** |

**08 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 08- March -2021  Description: Exercise 11.6 : 11.6.cpp  This program is to subtract two numbers together.  \*/  #include <iostream>  using namespace std;  int sub (int a, int b){  int r;  r = a - b;  return r;  }  int main()  {  int z;  z = sub (3,5);  cout << "The result is: " << z;  return 0;  } |
| **Output:** |

**08 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 08- March -2021  Description: Exercise 11.7 : 11.7.cpp  This program is to Multiply two numbers together.  \*/  #include <iostream>  using namespace std;  int mul (int a, int b){  int r;  r = a \* b;  return r;  }  int main()  {  int z;  z = mul (3,5);  cout << "The result is: " << z;  return 0;  } |
| **Output:** |

**08 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 08- March -2021  Description: Exercise 11.8 : 11.8.cpp  This program is to divide two numbers together.  \*/  #include <iostream>  using namespace std;  float div (float a, float b){  float r;  r = a / b;  return r;  }  int main()  {  float z;  z = div (10,2);  cout << "The result is: " << z;  return 0;  } |
| **Output:** |

**08 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 08- March -2021  Description: Exercise 11.9 : 11.9.cpp  This program is to show two functions inside of one function.  \*/  #include <iostream>  using namespace std;  // Function prototypes  void first();  void second();  int main()  {  cout << "I am starting in the main.\n";  first(); // call the function first  second(); // call the function second  cout << "Back in function main again.\n";  return 0;    }  /\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  \*first \*  \* This function displays a message. \*  \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/  void first(){  cout << "I am now inside the function first.\n";  }  /\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  \* second \*  \* This function displays a message. \*  \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/  void second(){  cout << "i am now inside the function second.\n";  } |
| **Output:** |

**08 March 2021**

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| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 08- March -2021  Description: Exercise 11.10 : 11.10.cpp  This program is to show two functions inside of one function.  \*/  #include <iostream>  using namespace std;  // Function prototypes  void first();  void second();  void third();  int main()  {  cout << "I am starting in the main.\n";  first(); // call the function first.  second(); // call the function second.  third(); // call the function third.  cout << "Back in function main again.\n";  return 0;    }  /\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  \*first \*  \* This function displays a message. \*  \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/  void first(){  cout << "I am now inside the function first.\n";  }  /\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  \* second \*  \* This function displays a message. \*  \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/  void second(){  cout << "i am now inside the function second.\n";  }  /\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  \* third \*  \* This function displays a message. \*  \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/  void third(){  cout << "i am now inside the function third.\n";  } |
| **Output:** |

**08 March 2021**

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| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 08- March -2021  Description: Exercise 11.11 : 11.11.cpp  This program is to show the function Max.  \*/  #include <iostream>  using namespace std;  //function declaration  int max(int num1, int num2);  int main()  {  // Local variable declaration:  int a = 100;  int b = 200;  int ret;    // calling a function to get max value.  ret = max(a, b);  cout << "Max value is : " << ret << endl;  return 0;  }  // function returning the max between two numbers  int max(int num1, int num2){  // local variable declaration  int result;    if (num1 > num2)  result = num1;  else  result = num2;    return result;  } |
| **Output:** |

**08 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 08- March -2021  Description: Exercise 11.12 : 11.12.cpp  This program is to show the function Min.  \*/  #include <iostream>  using namespace std;  //function declaration  int max(int num1, int num2);  int main()  {  // Local variable declaration:  int a = 100;  int b = 200;  int ret;    // calling a function to get min value.  ret = max(a, b);  cout << "Min value is : " << ret << endl;  return 0;  }  // function returning the min between two numbers  int max(int num1, int num2){  // local variable declaration  int result;    if (num1 > num2)  result = num2;  else  result = num1;    return result;  } |
| **Output:** |

**11 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 11 - March -2021  Description: Exercise 12.1 : 12.1.cpp  This program is to show the use of a function more than once.  \*/  #include <iostream>  using namespace std;  int subtraction ( int a, int b){  int r;  r = a - b;  return r;  }  int main ()  {  int x = 5, y = 3, z;  z = subtraction (7,2);  cout << "The first result is " << z << "\n";  cout << "The second result is " << subtraction (7,2) << "\n";  cout << "The third result is " << subtraction (x,y) << "\n";  z = 4 + subtraction (x,y);  cout << "The fourth result is " << z << "\n";  } |
| **Output:** |

**11 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 11 - March -2021  Description: Exercise 12.2 : 12.2.cpp  This program is to example the void function.  \*/  #include <iostream>  using namespace std;  void printmessage (){  cout << "I'm a function!";  }  int main()  {  printmessage ();  } |
| **Output:** |

**11 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 11 - March -2021  Description: Exercise 12.3 : 12.3.cpp  This program is showing passing parameters by reference.  \*/  #include <iostream>  using namespace std;  void duplicate (int& a, int& b, int& c){  a\*= 2;  b\*= 2;  c\*= 2;  }  int main()  {  int x = 1, y = 3, z = 7;  duplicate (x, y, z);  cout << "x = " << x << " , y = " << y << " , z = " << z;  return 0;  } |
| **Output:** |

**11 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 11 - March -2021  Description: Exercise 12.4 : 12.4.cpp  This program is showing passing parameters by reference.  \*/  #include <iostream>  using namespace std;  void duplicate (int& x, int& y){  x\*= 10;  y\*= 20;  }  int main()  {  int a = 2, b = 4;  duplicate (a, b);  cout << "a = " << a << " , b = " << b;  return 0;  } |
| **Output:** |

**11 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 11 - March -2021  Description: Exercise 12.5 : 12.5.cpp  This program is showing default values in a functions.  \*/  #include <iostream>  using namespace std;  int divide (int a, int b = 2){  int r;  r = a / b;  return (r);  }  int main()  {  cout << divide (12) << "\n";  cout << divide (20,4) << "\n";  return 0;  } |
| **Output:** |

**11 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 11 - March -2021  Description: Exercise 12.6 : 12.6.cpp  This program is showing default values in a functions.  \*/  #include <iostream>  using namespace std;  int divide (int a, int b = 5){  int r;  r = a / b;  return (r);  }  int main()  {  cout << divide (20) << "\n";  cout << divide (30) << "\n";  cout << divide (50,2) << "\n";  cout << divide (66,6) << "\n";  return 0;  } |
| **Output:** |

**11 March 2021**

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| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 11 - March -2021  Description: Exercise 12.7 : 12.7.cpp  This program is about declaring functions prototypes.  \*/  #include <iostream>  using namespace std;  void odd (int x);  void even (int x);  int main()  {  int i;  do {  cout << "Please, enter number (0 to exit): ";  cin >> i;  odd(i);  }  while (i!= 0);  return 0;  }  void odd (int x){  if ((x%2)!=0) cout << "It is odd.\n";  else even (x);  }  void even (int x){  if ((x%2)==0) cout << "It is even.\n";  else odd (x);  } |
| **Output:** |

**11 March 2021**

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| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 11 - March -2021  Description: Exercise 12.8 : 12.8.cpp  This program is an factorial calculator.  \*/  #include <iostream>  using namespace std;  long factorial (long a){  if (a > 1)  return (a \* factorial (a-1));  else  return 1;  }  int main()  {  long number = 9;  cout << number << "! = " << factorial (number);  return 0;  } |
| **Output:** |

**15 March 2021**

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| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.1 : 13.1.cpp  This program is a demo for strings.  \*/  #include <iostream>  #include <string>  using namespace std;  int main ()  {    string input;  cout <<"Enter your name: ";  cin >> input;  cout <<"Hello "<<input << "! Welcome to C++";  return 0;  } |
| **Output:** |

**15 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.2 : 13.2.cpp  This program is a demo for strings.  \*/  #include <iostream>  #include <string>  using namespace std;  int main()  {  //getline (cin, variable)    string input;  cout << "Enter your name: ";  getline (cin,input);    cout << "Hello " << input << "! Welcome to C++";    return 0;  } |
| **Output:** |

**15 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.3 : 13.3.cpp  This program is a demo for strings.  \*/  #include <iostream>  #include <string>  using namespace std;  int main()  {  // concatention    string first;  cout << "Enter your first name: ";  cin >> first;    string last;  cout << "Enter your last name: ";  cin >> last;    cout << "Hello " << first << " " << last << "! Welcome to C++";    return 0;  } |
| **Output:** |

**15 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.4 : 13.4.cpp  This program is a demo for strings.  \*/  #include <iostream>  #include <string>  using namespace std;  int main()  {  // concatenation    string first;  cout << "Enter the first part of the name: ";  cin >> first;    string second;  cout << "Enter the second part of the name: ";  cin >> second;    string third;  cout << "Enter your third part of the name: ";  cin >> third;    string fourth;  cout << "Enter your fourth part of the name: ";  cin >> fourth;    string fifth;  cout << "Enter your fifth part of the name: ";  cin >> fifth;    cout << first << " " << second << " " << third << " " << fourth << " of " << fifth ;    return 0;  } |
| **Output:** |

**15 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.5 : 13.5.cpp  This program is a demo for strings.  \*/  #include <iostream>  #include <string>  using namespace std;  int main()  {  // create new variable name    string first;  cout << "Enter your first name: ";  cin >> first;    string last;  cout << "Enter your last name: ";  cin >> last;    string name = first + " "+ last; // new variable  cout << endl;  cout << "Hello " + name + "! Welcome to C++";    return 0;  } |
| **Output:** |

**15 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.6 : 13.6.cpp  This program is a demo for strings.  \*/  #include <iostream>  #include <string>  using namespace std;  int main()  {  // Function: .length()    string name;  cout << "Enter your name: ";  getline (cin,name);    cout << endl;  cout << name.length() << endl;    return 0;    } |
| **Output:**  **13.6**  **13.7**  **13.8** |

**15 March 2021**

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| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.9 : 13.9.cpp  This program is a demo for string length using strlen.  \*/  #include <iostream>  #include <cstring>  using namespace std;  int main()  {  char ary[] = "Welcome to C++ Programming";  cout << "Lenght of string = " << strlen(ary) << endl;  return 0;  } |
| **Output:** |

**15 March 2021**

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| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.10 : 13.10.cpp  This program is a demo for string length using strlen.  \*/  #include <iostream>  #include <cstring>  using namespace std;  int main()  {  char ary1[] = "Java is Fun";  char ary2[] = "Python is a new and powerful language";  char ary3[] = "Uncle Roger likes egg fried rice";    cout << "Length of string in each array one is = " << strlen(ary1) << endl;  cout << "Length of string in each array two is = "<< strlen(ary2) << endl;  cout << "Length of string in each array three is = "<< strlen(ary3)<< endl;  cout << endl;  cout << "The total number of string characters is = " <<strlen(ary1) + strlen(ary2) + strlen(ary3) << endl;  return 0;  } |
| **Output:** |

**15 March 2021**

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| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.11 : 13.11.cpp  This program is to determine the position (index) of the string.  \*/  #include <iostream>  #include <string>  using namespace std;  int main()  {  // function: .at(int)    string name;  cout << "Enter your name: ";  getline (cin,name);    cout << name.at(6) << endl;    return 0;  } |
| **Output:** |

**15 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.12 : 13.12.cpp  This program is to determine the position (index) of the string.  \*/  #include <iostream>  #include <string>  using namespace std;  int main()  {  // function: .at(int)    string name;  cout << "Enter your Schools name: ";  getline (cin,name);    cout << name.at(4) << endl;    return 0;  } |
| **Output:** |

**15 March 2021**

|  |
| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.13 : 13.13.cpp  This program is to determine the position (index) of the string.  \*/  #include <iostream>  #include <string>  using namespace std;  int main()  {  // function: .at(int)    string name;  cout << "Enter your Schools name: ";  getline (cin,name);    cout << name.at(8) << endl;    return 0;  } |
| **Output:** |

**15 March 2021**

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| --- |
| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.14 : 13.14.cpp  This program is to determine the position (index) of the string.  \*/  #include <iostream>  #include <string>  using namespace std;  int main()  {  // function: .at(int)    string name;  cout << "Enter your Schools name: ";  getline (cin,name);    cout << name.at(12) << endl;    return 0;  } |
| **Output:** |

**15 March 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.15 : 13.15.cpp  This program is to determine the position (index) of the string.  \*/  #include <iostream>  #include <string>  using namespace std;  int main()  {  // function: .at(int)    string name;  cout << "Enter your Schools name: ";  getline (cin,name);    cout << name.at(16) << endl;    return 0;  } |
| **Output:** |

**15 March 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.16 : 13.16.cpp  This program is to determine the position (index) of the string.  \*/  #include <iostream>  #include <string>  using namespace std;  int main()  {  // function: .at(int)    string name;  cout << "Enter your Schools name: ";  getline (cin,name);    cout << name.at(20) << endl;    return 0;  } |
| **Output:** |

**15 March 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.17 : 13.17.cpp  This program is to show the append fuction.  \*/  #include <iostream>  #include <string>  using namespace std;  int main()  {  // function: .append(int)    string first;  cout << "Enter your first name: ";  getline (cin,first);    string last;  cout << "Enter your last name: ";  getline (cin,last);    cout << first.append(last) << endl;    return 0;  } |
| **Output:** |

**15 March 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.18 : 13.18.cpp  This program is to show the insert fuction.  \*/  #include <iostream>  #include <string>  using namespace std;  int main()  {  // function: .insert (index, string, start, length)    string name;  cout << "Enter your name: ";  getline (cin,name);    string insert = "Lau";    cout << name.insert(1,insert,0,3) << endl;    return 0;    } |
| **Output:** |

**15 March 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.19 : 13.19.cpp  This program is to show the insert function.  \*/  #include <iostream>  #include <string>  using namespace std;  int main()  {  // function: .insert (index, string, start, length)    string name;  cout << "Enter Loy: ";  getline (cin,name);    string insert = "bb";    cout << name.insert(2,insert,0,2) << endl;    return 0;    } |
| **Output:** |

**15 March 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.20 : 13.20.cpp  This program is to show the Cstring.  \*/  #include <iostream>  #include <cstring>  using namespace std;  int main()  {  char str1[10] = "Hello";  char str2[10] = "World";  char str3[10];  int len;    // copy str1 into str3  strcpy ( str3, str1);  cout << "strcpy( str3, str1 ) : " << str3 << endl;    // concatenates str1 and str 2  strcat( str1, str2 );  cout << "strcat( str1, str2 ): " << str1 << endl;    // total length of the str1 after concatenation  len = strlen(str1);  cout << "strlen( str1 ) : " << len << endl;    return 0;    } |
| **Output:** |

**15 March 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.21 : 13.21.cpp  This program is to show the string compare.  \*/  #include <iostream>  #include <cstring>  using namespace std;  int main()  {  char key[] = "mango";  char buffer[50];    do {  cout << "What is my favourite fruit? ";  cin >> buffer;  }  while (strcmp (key, buffer) != 0);  cout << "Answer is correct !! " << endl;    return 0;    } |
| **Output:** |

**15 March 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.22 : 13.22.cpp  This program is to show the stringconcat.  \*/  #include <iostream>  #include <cstring>  using namespace std;  int main()  {  char key[25], buffer[25];    cout << "Enter the key string: ";  cin.getline(key, 25);  cout << "Enter the buffer string: ";  cin.getline(buffer, 25);  cout << "Key = " << key << endl;  cout << "Buffer = " << buffer << endl;  return 0;    } |
| **Output:** |

**15 March 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.23 : 13.23.cpp  This program is to show the string copy.  \*/  #include <iostream>  #include <cstring>  using namespace std;  int main()  {  char key[25], buffer[25];    cout << "Enter the key string: ";  cin.getline(key, 25);  strcpy(buffer, key);  cout << "Key = " << key << endl;  cout << "Buffer = " << buffer << endl;  return 0;    } |
| **Output:** |

**15 March 2021**

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| **Program Code:**  /\*  Author Name: Sheldon Lee Smuts  Date: 13 - March -2021  Description: Exercise 13.24 : 13.24.cpp  This program is to show the string class.  \*/  #include <iostream>  #include <string>  using namespace std;  int main()  {  string str1 = "Hello";  string str2 = "world";  string str3;  int len;    //copy str1 to str3  str3 = str1;  cout << "str3 : " << str3 << endl;    // concatenates str1 and str2  str3 = str1 + str2;  cout << "str1 + str2 : " << str3 << endl;    // total length of the str3 after concatenation  len = str3.size();  cout << "str3.size() : " << len << endl;  return 0;    } |
| **Output:** |