**LAB #04:**

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# LAB #04 – Escape Sequences, Strings, cin, getline & if - else

This lab contains Escape Sequences, Char and String Data Types, cin, getline, sizeof, Name Constant, and Operator Precedence and if - else.

## Task 1: Escape Sequences

Objective: To understand how escape sequences format text output.

Problem Statement: Write a program that prints your name, department, and favorite quote using escape sequences to align and decorate output.

Solution:

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| #include <iostream> using namespace std;  int main() { cout << "Name: Ahmad jalal" << endl; cout << "Department: SCIT" << endl; cout << "Quote: \"Knowledge is power.\"" << endl; return 0; } |

Sample Output:

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| Name: Sheeza Batool Department: SCIT Quote: "Knowledge is power." |

## Task 2: string, cin and arithmetic operators

Write a program that calculates the average rainfall for three months. The program  
should ask the user to enter the name of each month, such as June or July, and the  
amount of rain (in inches) that fell each month. The program should display a message  
similar to the following:  
The average rainfall for June, July, and August is 6.72 inches.

Solution:

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| #include<oa5黑eaw~ #includecstring~ using nanespace 35a: main () I string monthl, nonth2, month3; coute"Enter month："： cin>>monthl; Coute"Enter month : "; cin>›month2; COute"Enter manth："： cin>>months; double amounti, amount2, amount3, AverageRainfall: Coutく"Enter amount for M1 : "; cin>›amounti; COutXく"Enter amount M2 : ": cin>›amount2; COutく"Enter amount M3: "; cin>›amount3; AverageRainfall-amount1+amount2+amount3/3; cout"average Raintal1： "K<AVEEageRaanEalA： |

## Task 3: Name constant, cin and arithmetic operators

The surface area A of a cylinder is given by the following formula:  
***A***  = ***2*** ***πrh*** + ***2*** ***πr***2  
The volume V of a cylinder is given by the following formula:  
***V*** = π*r*2***h***The term r is the radius and h is the height of the cylinder. Write a program that asks  
the user for the radius and height of the cylinder and displays the area and volume.  
Assume that value of π is 3.1415926535.

Solution:

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| Sure! Here’s the same program cleaned up — no comments or unnecessary lines:  #include <iostream>  using namespace std;  int main() {  double radius, height;  const double PI = 3.1415926535;  cout << "Enter the radius of the cylinder: ";  cin >> radius;  cout << "Enter the height of the cylinder: ";  cin >> height;  double area = 2 \* PI \* radius \* height + 2 \* PI \* radius \* radius;  double volume = PI \* radius \* radius \* height;  cout << "\nThe surface area of the cylinder is: " << area << endl;  cout << "The volume of the cylinder is: " << volume << endl;  return 0;  } |

## Task 4: cin, if statement

A company is hiring new recruits who should be within 18 to 28 years of age. Write a  
program that asks the user to input the current year and an applicant’s year of birth.  
It then displays the age and a message indicating whether the applicant is eligible.

Solution:

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| Here’s a clean, simple, and human-friendly C++ program for that:  #include <iostream>  using namespace std;  int main() {  int currentYear, birthYear, age;  cout << "Enter the current year: ";  cin >> currentYear;  cout << "Enter the applicant's year of birth: ";  cin >> birthYear;  age = currentYear - birthYear;  cout << "\nThe applicant is " << age << " years old." << endl;  if (age >= 18 && age <= 28)  cout << "The applicant is eligible for hiring." << endl;  else  cout << "The applicant is not eligible for hiring." << endl;  return 0;  } |

## Task 5: cin, if – else statement

Write a program that asks the user to enter the **length** and **width** of **two rectangles**.  
The program should calculate the **area** of each rectangle using the formula:

After calculating both areas, the program should:

* Display the **area of each rectangle**,
* Indicate whether **Rectangle 1 and Rectangle 2 have equal areas or not**.

Solution:

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| Here’s a clean, simple, and beginner-friendly C++ program for that:  #include <iostream>  using namespace std;  int main() {  double length1, width1, length2, width2, area1, area2;  cout << "Enter the length of Rectangle 1: ";  cin >> length1;  cout << "Enter the width of Rectangle 1: ";  cin >> width1;  cout << "Enter the length of Rectangle 2: ";  cin >> length2;  cout << "Enter the width of Rectangle 2: ";  cin >> width2;  area1 = length1 \* width1;  area2 = length2 \* width2;  cout << "\nArea of Rectangle 1: " << area1 << endl;  cout << "Area of Rectangle 2: " << area2 << endl;  if (area1 == area2)  cout << "Both rectangles have equal areas." << endl;  else  cout << "The rectangles do not have equal areas." << endl;  return 0;  } |