INDEPENDENT UNIVERSITY, BANGLADESH

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

SUMMER 2020

ASSIGNMENT 1

POINT: 100 (EACH PROBLEM, CARRIES 10P)

DUE: 27-07-2020, 11.59 PM.

Arithmetic Operations

**100**

**Instructions:**

**1. Plagiarism will not be tolerated.**

**2. Do not copy from any online source or from a person.**

**3. If you could not do any problem, leave it blank.**

**4. Partial marks will be given for partially solved solutions.**

Problem Set:

1. Write a program that will take the length and width of a rectangle from the user and prints the area and perimeter of the rectangle.
2. Write a program that calculates the number of second, minutes and hours in 1 year.
3. Write a program that takes the number of hours as input and displays the equivalent number of weeks, days, and hours. For example, if the user inputs 4000 hours, the program displays 23 weeks, 5 days and 16 hours.
4. Write a program that converts the number of days into month and years. For example, if the user inputs 813 days, the program prints: 2 years 2 months 23 days. (don’t worry about leap year and you can calculate using 1 month = 30 days)
5. Write a program that prompts the user for the current year and user’s current age. It then calculate and prints the user’s birthday.
6. Write a program that swaps (exchanges) the values of two variables.
7. Take an integer from the user and print the last digit of that number. For example, if the user enters 10773, the program prints 3.
8. Write a program that takes a decimal number from the user and then prints the integer part and the decimal part separately. For example, if the user enters 2.718, the program prints: Integer part = 2 and decimal part = .718.
9. Write a program that inputs number of cents (from 0 to 99) and outputs the minimal number of pennies (1 cent), nickels (5 cents), dimes (10 cents) and quarters (25 cents) with the same value. For example, 94 cents is the same as 3 quarters, 1 dime, 1 nickel, and 4 pennies.
10. Write a program to compute that will take a,b,c from user and print the value of *x* by using following equation. (Hint: use pow() and sqrt() functions and don’t forget to include <cmath> **X =**

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**Assignment No : 1**

**Answer to the question No: 1**

#include<iostream>

using namespace std;

int main()

{

double width, length, area, perimeter;

cout<<"Enter the number of width :";

cin>>width;

cout<<"Enter the number of length :";

cin>>length;

area=width\*length;

cout<<"\nThe number of area is: "<<area<<endl;

perimeter=2\*(width+length);

cout<<"\nThe number of perimeter is: "<<perimeter;

return 0;

}

**Answer to the question No: 2**

#include<iostream>

using namespace std;

int main()

{

int year, days, seconds, minutes, hours;

cout<<"Enter the number of year: ";

cin>>year;

days= year\*365;

seconds= days\*24\*60\*60;

cout<<"Second is: "<<seconds<<endl;

minutes= days\*24\*60;

cout<<"Minutes is: "<<minutes<<endl;

hours= days\*24;

cout<<"Hour is: " <<hours<<endl;

return 0;

}

**Answer to the question No: 3**

#include<iostream>

using namespace std;

int main()

{

int hour,hour1,day,week;

cout<<"Enter the hour :";

cin>>hour;

week=hour/168;

day=(hour%168)/24;

hour1=(hour%168)%24;

cout<<"The weeks is :"<<week<<endl;

cout<<"The days is :"<<day<<endl;

cout<<"The hours is :"<<hour1;

return 0;

}

**Answer to the question No: 4**

#include<iostream>

using namespace std;

int main()

{

int year, month, day;

cout<<"Enter the number of days: ";

cin>>day;

year = day / 365;

day = day % 365;

month = day / 30;

day = day % 30;

cout<<"Year is: "<<year<<endl;

cout<<"Months is: "<<month<<endl;

cout<<"Day is: "<<day<<endl;

return 0;

}

**Answer to the question No: 5**

#include<iostream>

using namespace std;

int main()

{

int age, year, birth, birthyear;

while(1)

{

cout<<"\nEnter your current age: ";

cin>>age;

cout<<"Enter your current year: ";

cin>>year;

birth = (year - age) - 2000;

birthyear = birth - (-2000);

cout<<"\nYour date of birth year is :"<<birthyear<<endl;

}

return 0;

}

**Answer to the question No: 6**

#include<iostream>

using namespace std;

int main()

{

int x,y;

cout<<"Enter the number:";

cin>>x;

cout<<"Enter the number:";

cin>>y;

x=x+y;

y=x-y;

x=x-y;

cout<<"After swapping :"<<x<<" & "<<y;

return 0;

}

**Answer to the question No: 7**

#include<iostream>

using namespace std;

int main()

{

int in, last;

cout << "Enter any number: ";

cin >>in;

last= in % 10;

cout<<"The last digit is: "<<last<<endl;

return 0;

}

**Answer to the question No: 8**

#include<iostream>

using namespace std;

int main()

{

double in, decimal;

int integer;

cout<<"Enter decimal number: ";

cin>>in;

integer = (int) in;

decimal = in - integer;

cout<<"Integer part is: "<<integer<<endl;

cout<<"Deciamal part is: "<<decimal<<endl;

return 0;

}

**Answer to the question No: 9**

#include<iostream>

using namespace std;

int main()

{

int in, pennies=1, nickel=5, dime=10, quarters=25;

cout<<"Enter any amount: ";

cin>>in;

quarters = in / 25;

dime = (in % 25) / 10;

nickel = ((in % 25) % 10) / 5;

pennies = (((in % 25) % 10) % 5) / 1;

cout<<"Quarters is: "<<quarters<<endl;

cout<<"Dime is: "<<dime<<endl;

cout<<"Nickel is: "<<nickel<<endl;

cout<<"pennies is: "<<pennies<<endl;

return 0;

}

**Answer to the question No: 10**

#include <iostream>

#include <math.h>

#include<stdlib.h>

using namespace std;

int main()

{

float in1, in2, in3, x, y, dis, Part1, Part2;

cout <<"Enter first value a: ";

cin >>in1;

cout <<"Enter second value b: ";

cin >>in2;

cout <<"Enter third value c: ";

cin >>in3;

dis= in2\*in2 - 4\*in1\*in3;

if (dis > 0)

{

x = (-in2 + sqrt(dis)) / (2\*in1);

y = (-in2 - sqrt(dis)) / (2\*in1);

cout <<"\nRoots are real and different: " << endl;

cout <<"x = " <<x<<endl;

cout <<"y = " <<y<<endl;

}

else if (dis == 0)

{

cout <<"\nRoots are real and same: " << endl;

x = (-in2 + sqrt(dis)) / (2\*in1);

cout << "x = y =" <<x<< endl;

}

else

{

Part1 = -in2/(2\*in1);

Part2 =sqrt(-dis)/(2\*in1);

cout << "\nRoots are complex and different: "<< endl;

cout <<"X = " <<Part1<<" + "<<Part1<<"i"<<endl;

cout <<"Y = " <<Part2<<" - "<<Part2<<"i"<<endl;

}

return 0;

}

**End**