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Lab # 2

1. Write a program to check if a number is even or odd.

    #include<iostream>

    using namespace std;

    int main(){

        int a;

        cout<<"enter num: ";

        cin>>a;:

        cout<<"number is = "<<((a%2==0)? "even":"odd")<<endl;

        return 0;

    }

2. Write a program to find the largest of two numbers.

    #include<iostream>

    using namespace std;

    int main(){

        int a, b;

        cout<<"enter a and b: ";

        cin>>a>>b;

        cout<<"bigger number is "<<((a>b)?"a":((a<b)?"b":"none"))<<endl;

        return 0;

    }

3. Write a program to print numbers from 1 to 10 using a for loop.

    #include<iostream>

    using namespace std;

    int main(){

        for(int i=1;i<=10;i++){

        cout<<i<<endl;

}

        return 0;

    }

4. Write a program to print the sum of numbers from 1 to n.

    #include<iostream>

    using namespace std;

    int main(){

        int n;

        cout<<"enter n: ";

        cin>>n;

for(int i=(n-1);i>=1;i--){

n+=1;

}

        cout<<"sum of number from 1-n = "<<n<<endl;

        return 0;

    }

5. Write a program to check if a number is positive, negative, or zero.

    #include<iostream>

    using namespace std;

    int main(){

        int a;

        cout<<"enter a: ";

        cin>>a;

        cout<<"a = "<<((a>0)?"positive":((a<0)?"negetive":"zero"))<<endl;

        return 0;

    }

6. Write a program to display multiplication table of a number.

    #include<iostream>

    using namespace std;

    int main(){

        int a;

        cout<<"enter a: ";

        cin>>a;

for(int i=1;i<=10;i++){

        cout<< a <<" x "<< i <<" = "<< a\*i <<endl;

}

        return 0;

    }

7. Write a program to calculate factorial of a number.

    #include<iostream>

    using namespace std;

    int main(){

        int a;

        cout<<"enter a: ";

        cin>>a;

if(a<=1){

cout<<"factorial of a = 1"<<endl;

return 0;

}

for(int i=(a-1);i>=2;i--){

a\*=i;

}

        cout<<"factorial of a = "<<a<<endl;

        return 0;

    }

8. Write a program to print Fibonacci series up to n terms.

    #include<iostream>

    using namespace std;

    int main(){

        int n,a=0,b=1,t=0;

        cout<<"enter n: ";

        cin>>n;

cout<<"0"<<endl;

for(int i=1;i<n;i++){

cout<<b<<endl;

t=b;

b=a+b;

a=t;

}

        cout<<""<<endl;

        return 0;

    }

9. Write a program to find the largest of three numbers.

    #include<iostream>

    using namespace std;

    int main(){

        int a, b, c;

        cout<<"enter a, b and c: ";

        cin>>a>>b>>c;

        cout<<"largest = ";

if(a>b && a>c){

cout<<a;

}

else if (b>a && b>c){

cout<<b;

}

else {

cout<<c;

}

cout<<endl;

        return 0;

    }

10. Write a program to check if a year is a leap year.

    #include<iostream>

    using namespace std;

    int main(){

        int Y;

        cout<<"enter YEAR: ";

        cin>>Y;

        cout<<"YEAR is ";

if(((Y%4==0) && (Y%100)!==0)||(Y%400==0)){

cout<<"leap year";

}else{

cout<<"not leap year";

}

cout<<endl;

        return 0;

    }

11. Write a program to print all even numbers from 1 to 100.

    #include<iostream>

    using namespace std;

    int main(){

for(int i=2;i<=100;i+=2){

        cout<<i<<endl;

}

        return 0;

    }

12. Write a program to print all odd numbers from 1 to 100.

    #include<iostream>

    using namespace std;

    int main(){

for(int i=1;i<=100;i+=2){

        cout<<i<<endl;

}

        return 0;

    }

13. Write a program to reverse a number.

    #include<iostream>

    using namespace std;

    int main(){

        int a;

        cout<<"enter a: ";

        cin>>a;

while(a>0){

cout<<a%10;

a/=10;

}

        return 0;

    }

14. Write a program to find the sum of digits of a number.

    #include<iostream>

    using namespace std;

    int main(){

        int a,s=0;

        cout<<"enter a: ";

        cin>>a;

while(a>0){

s+=a%10;

a/=10;

}

        cout<<"sum = "<<s<<endl;

        return 0;

    }

15. Write a program to check if a number is a palindrome.

    #include<iostream>

    using namespace std;

    int main(){

        string a;

bool p=1;

        cout<<"enter a: ";

        cin>>a;

        cout<<"number is ";

for(int i=0;i<(sizeof(a)/2);i++)

if(a[i]!=a[n-i-1]){

p=0;

}

}

cout<<(p? " Palindrome ": " Not a palindrome ");

cout<<endl;

        return 0;

    }

16. Write a program to check if a number is prime.

    #include<iostream>

    using namespace std;

    int main(){

        int a,p=1;

        cout<<"enter a: ";

        cin>>a;

for(int i = (n/2);i>=2;i--)

if(a%i==0)p=0;

        cout<<"a = "<<(p? "prime":"not prime")<<endl;

        return 0;

    }

17. Write a program to print prime numbers between 1 and 100.

    #include<iostream>

    using namespace std;

    int main(){

bool p = 1;

        for(int i=1;i<=100;i++){

for(int j=2;j<=(i/2);j++){

if(i%j==0){

p=0;

}

}

if(p){

cout<<i<<endl;

}

p=1;

}

        return 0;

    }

18. Write a program to calculate the power of a number.

    #include<iostream>

    using namespace std;

    int main(){

        int a, b=0;

        cout<<"enter a: ";

        cin>>a;

for(int i=(a-1);i>1;i--){

if(a%i==0){

b++;

}

}

        cout<<"power of it is "<<b<<endl;

        return 0;

    }

19. Write a program to find the greatest common divisor (GCD) of two numbers.

    #include <iostream>

using namespace std;

int gcd(int a, int b) {

while (b != 0) {

int temp = b;

b = a % b;

a = temp;

}

return a;

}

int main() {

int x, y;

cout << "Enter two numbers: ";

cin >> x >> y;

cout << "GCD of " << x << " and " << y << " is " << gcd(x, y) << endl;

return 0;

}

20. Write a program to find the least common multiple (LCM) of two numbers.

    #include <iostream>

using namespace std;

int main() {

int a, b;

cout << "Enter two numbers: ";

cin >> a >> b;

int lcm = (a > b) ? a : b; // Start from the larger number

while (true) {

if (lcm % a == 0 && lcm % b == 0) {

cout << "LCM of " << a << " and " << b << " is " << lcm << endl;

break;

}

lcm++;

}

return 0;

21. Write a program to display the pattern of stars in a triangle.

    #include<iostream>

    using namespace std;

    int main(){

        for(int i=0;i<10;i++){

for(int j=0;i<0;j++){

}

}

        return 0;

    }

22. Write a program to display the multiplication tables from 1 to 10.

    #include<iostream>

    using namespace std;

    int main(){

        for(int a=1;a<=10;a++){

cout<<”table of “<<a<<endl;

        for(int i=1;i<=10;i++){

        cout<< a <<" x "<< i <<" = "<< a\*i <<endl;

}

cout<<endl;

}

        return 0;

    }

23. Write a program to count the number of digits in a number.

    #include<iostream>

    using namespace std;

    int main(){

        int a,n=0;

        cout<<"enter a: ";

        cin>>a;

while(a>0){

a/=0;

n++;

}

        cout<<"number of digits in a is = "<<n<<endl;

        return 0;

    }

24. Write a program to check if a number is an Armstrong number.

    #include<iostream>

    using namespace std;

    int main(){

        int a;

        cout<<"enter a: ";

        cin>>a;

bool Q=1;

int n=0,sum=0,num=a;

while(num>0){

num/=10;n++;}

num = a;

while(num>0){

sum+=(pow(num%10,n));

num/=10;}

if(sum==a)Q=0

        cout<<"Number "<<(Q?"Is Not ":"Is "<<" an Armstrong Number "<<endl;

        return 0;

    }

25. Write a program to print the sum of even and odd numbers separately from 1 to n.

    #include<iostream>

    using namespace std;

    int main(){

        int n,sumE=0,sumO=0;

        cout<<"enter n: ";

        cin>>n;

for(int i=1;i<=n;i++){

if(i%2==0){

sumE+=i;

else{

sumO+=i;

}

        cout<<"sum of even = "<<sumE<<endl;

        cout<<"sum of odd "<<sumO<<endl;

        return 0;

    }