CSE214

Algorithm Theory

Problem Set 1

Submitted To

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Task 5.1

```
#include <bits/stdc++.h>
using namespace std;
int fibonacci(int n)
{
   if (n<=1)return n;
   else return fibonacci(n-1)+fibonacci(n-2);
}
int main()
{
   int n=10;
   cout<<fibonacci(n)<<endl;
}
```

Task 5.2

```
#include <bits/stdc++.h>
using namespace std;
int main()
{
   int i,n=10;
   int arr[n];
   arr[0]=0,arr[1]=1;

   for(i=2;i<=n;i++)
   {
      arr[i]=arr[i-1]+arr[i-2];
   }
```

```
    cout<<arr[n]<<endl;
}
```

Task 6

```
#include <bits/stdc++.h>
using namespace std;
int main()
{
    long long int i,n=331;
    long long int arr[n];
    arr[0]=0,arr[1]=1;

    for(i=2;i<=n;i++)
    {
        arr[i]=(arr[i-1]+arr[i-2])%10;
    }
    printf("%lld\n",arr[n]);
}
```

Task 7

```
    #include <bits/stdc++.h>
    using namespace std;
    int eulerGCD(int a,int b)
    {
        if (b == 0)return a;
        return eulerGCD(b,a%b);
    }
    int main()
    {
```

```
    int a,b;
    printf("%d\n",eulerGCD(3768,1701));
}
```

Task 8

```
#include <bits/stdc++.h>
using namespace std;
int eulerGCD(int a,int b)
{
    if (b == 0)return a;
    return eulerGCD(b,a%b);
}
int main()
{
    int a=60,b=24,gcd,lcm;
    gcd=eulerGCD(a,b);
    lcm=(a*b)/gcd;
    cout<<lcm<<endl;
}
```