05 March 2024 16:57

Fibanoccci sum

```
#include <stdio.h>

int main() {
   int n;
   long long int fib1 = 0, fib2 = 1, nextTerm, sum = 0;
printf("name=kongara sai\n");
printf("reg no=192365025\n");
   printf("Enter the number of terms: ");
   scanf("%d", &n);

   printf("Fibonacci Series: ");

   for (int i = 1; i <= n; ++i) {
      printf("%lld, ", fib1);
      sum += fib1;
      nextTerm = fib1 + fib2;
      fib1 = fib2;
      fib2 = nextTerm;
   }

   printf("\nSum of Fibonacci Series: %lld\n", sum);

   return 0;
}
```

```
name=kongara sai
reg no=192365025
Enter the number of terms: 3
Fibonacci Series: 0, 1, 1,
Sum of Fibonacci Series: 2

--------------------------------
```

Factorial

```
#include <stdio.h>

int main() {
   int num;
   printf("name=kongara sai\n");
  printf("reg no=192365025\n");
   printf("Enter a number: ");
   scanf("%d", &num);

   int factorial = 1;
```

```
    if (num < 0) {
        printf("Factorial is not defined for negative numbers.\n");
    } else {
        for (int i = 1; i <= num; i++) {
            factorial *= i;
        }
        printf("Factorial of %d is %d\n", num, factorial);
    }

    return 0;
}
```

```
name=kongara sai
reg no=192365025
Enter a number: 5
Factorial of 5 is 120

--------------------------------
```

Nth fibbonacci num

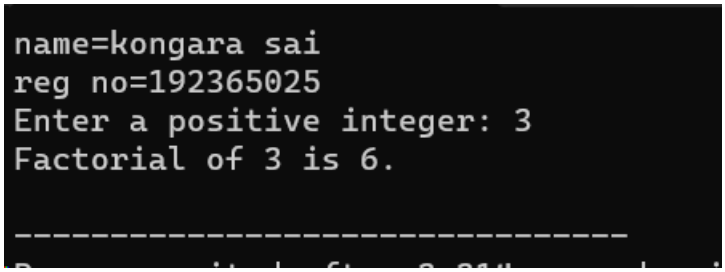
```
#include <stdio.h>

 int fibonacci(int n) {
    if (n <= 1)
        return n;
    else
        return fibonacci(n - 1) + fibonacci(n - 2);
}

int main() {
    int n;
    printf("name=kongara sai\n");
   printf("reg no=192365025\n");
    printf("Enter the value of n: ");
    scanf("%d", &n);

    printf("The %dth Fibonacci number is: %d\n", n, fibonacci(n));

    return 0;
}
```

```
name=kongara sai
reg no=192365025
Enter the value of n: 3
The 3th Fibonacci number is: 2

--------------------------------
```

Fibonnaci using recursion

```
#include <stdio.h>

 int factorial(int n) {
    if (n == 0 || n == 1) {
```

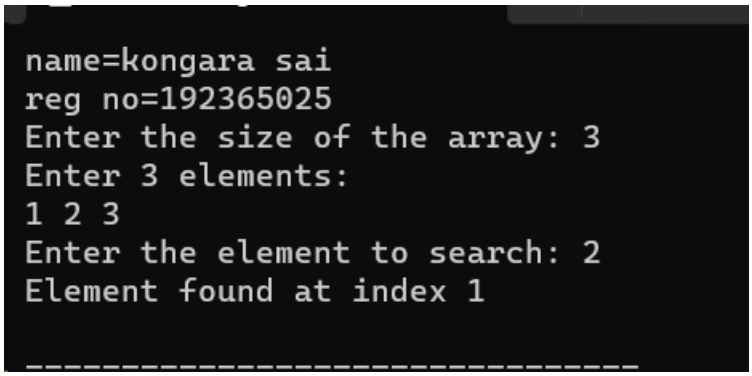
```
        return 1;
    } else {
        return n * factorial(n - 1);
    }
}

int main() {
    int num;
    printf("name=kongara sai\n");
   printf("reg no=192365025\n");
    printf("Enter a positive integer: ");
    scanf("%d", &num);

     if (num < 0) {
        printf("Factorial is not defined for negative numbers.\n");
    } else {
        int fact = factorial(num);
        printf("Factorial of %d is %d.\n", num, fact);
    }

    return 0;
}
```



LINEAR SEARCH

```
#include <stdio.h>

int main() {
    int arr[100];
    int N, target;
 printf("name=kongara sai\n");
   printf("reg no=192365025\n");
    printf("Enter the size of the array: ");
    scanf("%d", &N);

    printf("Enter %d elements:\n", N);
    for (int i = 0; i < N; i++) {
        scanf("%d", &arr[i]);
    }

    printf("Enter the element to search: ");
    scanf("%d", &target);


    int found = 0;
    for (int i = 0; i < N; i++) {
        if (arr[i] == target) {
            found = 1;
            printf("Element found at index %d\n", i);
```

```
            break;
        }
    }

    if (!found) {
        printf("Element not found in the array\n");
    }

    return 0;
}
```



Binary search

```
#include <stdio.h>

int main() {
    int arr[100], n, key, low, high, mid;
    printf("name=kongara sai\n");
   printf("reg no=192365025\n");
    printf("Enter the number of elements in the array: ");
    scanf("%d", &n);

    printf("Enter the elements of the array in sorted order:\n");
    for(int i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }

    printf("Enter the element to search: ");
    scanf("%d", &key);

    low = 0;
    high = n - 1;

    while(low <= high) {
        mid = (low + high) / 2;

        if(arr[mid] == key) {
            printf("Element found at index %d.\n", mid);
            return 0;
        }
        else if(arr[mid] < key) {
            low = mid + 1;
        }
        else {
            high = mid - 1;
```

```
    }
  }

  printf("Element not found in the array.\n");
  return 0;
}
```

```
name=kongara sai
reg no=192365025
Enter the number of elements in the array: 5
Enter the elements of the array in sorted order:
1 2 3 4 5
Enter the element to search: 5
Element found at index 4.

--------------------------------
```