Assignment - 10
A Job Ready Bootcamp in C++, DSA and IOT MySirG

Functions in C Language

Submitted by;
Vishal Shaw
bkr.vishalshaw@gmail.com

—---

1. Write a function to calculate the area of a circle. (TSRS)

```
#include <stdio.h>

float area(float);
float PI = 3.14;
int main()
{
    float r;
    printf("Enter radius: ");
    scanf("%f", &r);
    printf("area of circle is: %.2f unit^2", area(r));
    return 0;
}

float area(float a)
{
    float area;
    area = 2 * PI * a * a;
    return area;
}
```

2. Write a function to calculate simple interest. (TSRS)

```c
#include <stdio.h>

float si(float, float, float);
int main()
{
    float p, r, t;
    printf("Enter initial amt. rate and time: ");
    scanf("%f%f%f", &p, &r, &t);
    printf("Simple interest is: %.2f", si(p, r, t));
    return 0;
}

float si(float a, float b, float c)
{
    float sint = 0.0;
    sint = (a * b * c) / 100;
    return sint;
}
```

3. Write a function to check whether a given number is even or odd. Return 1 if the number is even, otherwise return 0. (TSRS)

```c
#include <stdio.h>

int eveodd(int);
int main()
{
    int a;
    printf("Enter a number: ");
    scanf("%d", &a);
    printf("%d", eveodd(a));
    return 0;
}
```

```
int eveodd(int n)
{
    return (n % 2 == 0) ? 1 : 0;
}
```

4. Write a function to print first N natural numbers (TSRN)

```
#include <stdio.h>

void nat(int);
int main()
{
    int a;
    printf("Enter value of n: ");
    scanf("%d", &a);
    nat(a);
    return 0;
}

void nat(int n)
{
    for (int i = 1; i <= n; i++)
    {
        printf("%d ", 2 * i - i);
    }
}
```

5. Write a function to print first N odd natural numbers. (TSRN)

```c
#include <stdio.h>

void oddnat(int);
int main()
{
    int a;
    printf("Enter value of a: ");
    scanf("%d", &a);
    oddnat(a);
    return 0;
}

void oddnat(int n)
{
    for (int i = 1; i <= n; i++)
    {
        printf("%d ", 2 * i - 1);
    }
}
```

6. Write a function to calculate the factorial of a number. (TSRS)

```c
#include <stdio.h>

int fact(int);
int main()
{
    int a;
    printf("Enter value of a: ");
    scanf("%d", &a);
    printf("%d", fact(a));
    return 0;
}

int fact(int n)
{
    int val = 1;
    while (n > 0)
    {
        val = val * n;
        n--;
    }
    return val;
}
```

7. Write a function to calculate the number of combinations one can make from n items and r selected at a time. (TSRS)

```
#include <stdio.h>

int comb(int a, int b);
int fact(int);
int main()
{
    int a, b;
    printf("Enter value of n items and r selected items:
");
    scanf("%d %d", &a, &b);
    printf("%d", comb(a, b));
    return 0;
}

int fact(int n)
{
    int val = 1;
    while (n > 0)
    {
        val = val * n;
        n--;
    }
    return val;
}

int comb(int a, int b)
{
    int val, nitems, selitems;
    nitems = fact(a);
    selitems = fact(b);
    val = nitems / (selitems * fact(a - b));
    return val;
}
```

8. Write a function to calculate the number of arrangements one can make from n items and r selected at a time. (TSRS)

```
#include <stdio.h>

int comb(int a, int b);
int fact(int);
int main()
{
    int a, b;
    printf("Enter value of n items and r selected items:
");
    scanf("%d %d", &a, &b);
    printf("%d", comb(a, b));
    return 0;
}
```

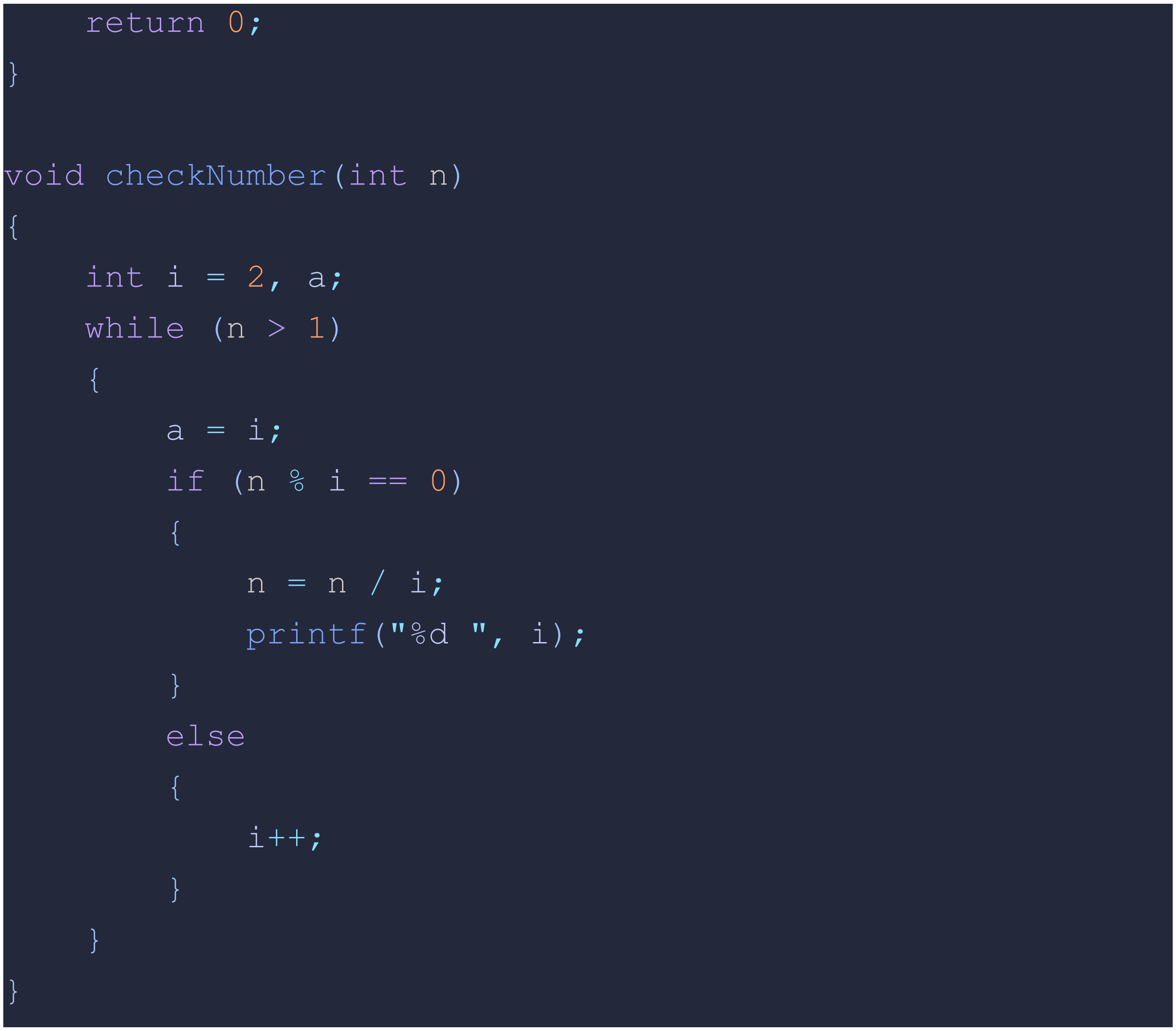
```c
int fact(int n)
{
    int val = 1;
    while (n > 0)
    {
        val = val * n;
        n--;
    }
    return val;
}

int comb(int a, int b)
{
    int val, nitems;
    nitems = fact(a);
    val = nitems / fact(a - b);
    return val;
}
```

9. Write a function to check whether a given number contains a given digit or not.
(TSRS)

```c
#include <stdio.h>

int checkNumber(int, int);
int main()
{
    int a, b;
    printf("Enter a number and a digit to check: ");
    scanf("%d %d", &a, &b);
    if (checkNumber(a, b))
        printf("found");
    else
        printf(("Not Found"));
    return 0;
}

int checkNumber(int n, int m)
{
    int dig, flag = 0;
    while (n > 0)
    {
        dig = n % 10;
        if (m == dig)
        {
            flag = 1;
            break;
        }
        n = n / 10;
    }
    return flag;
}
```

10. Write a function to print all prime factors of a given number. For example, if the number is 36 then your result should be 2, 2, 3, 3. (TSRN)

```
#include <stdio.h>

void checkNumber(int);
int main()
{
    int a;
    printf("Enter a number: ");
    scanf("%d", &a);
    checkNumber(a);
```



```
    return 0;
}

void checkNumber(int n)
{
    int i = 2, a;
    while (n > 1)
    {
        a = i;
        if (n % i == 0)
        {
            n = n / i;
            printf("%d ", i);
        }
        else
        {
            i++;
        }
    }
}
```