Programming 2

Assignment 2

Q1: Using functions, write a C++ program to calculate car parking charge based on number of hours that the car is parked such that:

- 2.00 SAR/hour if hours<=3.
- If hours (more than 3 but less the 24) then for each extra hour 1 SAR for more than 3 hours.
- if number of hours is 24 then 75 SAR.

Code :

```
#include <iostream>
using namespace std;
void getPriceOfParking(int n){
double total;
        if(n<=3)
 {
        total = 2.00*n;
 }
 else if((n>3)&&(n<24))
 {
        total=2*3;
        n=n-3;
        total = total+(n*1);}
 else{
        total = 75;

 }
 cout<<"the total of price is "<<total<<endl;




}
int main() {
 int n;
 cout<<"please Enter the number of hour  the car park : "<<endl;
 cin>>n;
 getPriceOfParking(n);
 return 0;
}
```

Output :

```
please Enter the number of hour  the car park :
3
the total of price is 6

--------------------------------
Process exited after 3.623 seconds with return value 0
Press any key to continue . . .
```

```
please Enter the number of hour  the car park :
20
the total of price is 23

--------------------------------
Process exited after 1.218 seconds with return value 0
Press any key to continue . . .
```

```
please Enter the number of hour  the car park :
30
the total of price is 75

--------------------------------
Process exited after 2.328 seconds with return value 0
Press any key to continue . . .
```

```
#include <iostream>

using namespace std;
void getPriceOfParking(int n){
double total;

    if(n<=3)
 {
   total = 2.00*n;


 }
 else if((n>3)&&(n<24))
 {
   total=2*3;
   n=n-3;
   total = total+(n*1);


 }
 else{
   total = 75;

 }
 cout<<"the total of price is "<<total<<endl;


}
int main() {
  int n;
  cout<<"please Enter the number of hour  the car park : "<<endl;
  cin>>n;
  getPriceOfParking(n);
  return 0;
}
```

Q2: Using functions, write a C++ program to calculate Gas/Benzine amount based on number of liters such that:

- Octane **95** gasoline to SR2.18
- Octane **91** to SR1.53

Code :

```
#include <iostream>
using namespace std;
void total95(int n) {
 double total=0;
 total=n*2.18;
 cout<<"the total is "<<total<<endl;
}
void total91(int n) {
 double total=0;
 total=n*1.53;
 cout<<"the total is "<<total<<endl;}
int main() {
   int n,n1;
   cout<<"enter the  number of leters of Octane 95 "<<endl;
   cin>>n;
         total95(n);
         cout<<"enter the  number of leters of Octane 91"<<endl;
         cin>>n1;
         total95(n1);}
```

Output :

```
#include <iostream>
using namespace std;

void total95(int n) {


 double total=0;
 total=n*2.18;
 cout<<"the total is "<<total<<endl;


}
void total91(int n) {


 double total=0;
 total=n*1.53;
 cout<<"the total is "<<total<<endl;


}

int main() {
    int n,n1;
    cout<<"enter the  number of leters of Octane 95 "<<endl;
    cin>>n;
    total95(n);
    cout<<"enter the  number of leters of Octane 91"<<endl;

    cin>>n1;
    total95(n1);



}
```

```
enter the  number of leters of Octane 95
14
the total is 30.52
enter the  number of leters of Octane 91
12
the total is 26.16

--------------------------------
Process exited after 5.235 seconds with return value 0
Press any key to continue . . .
```

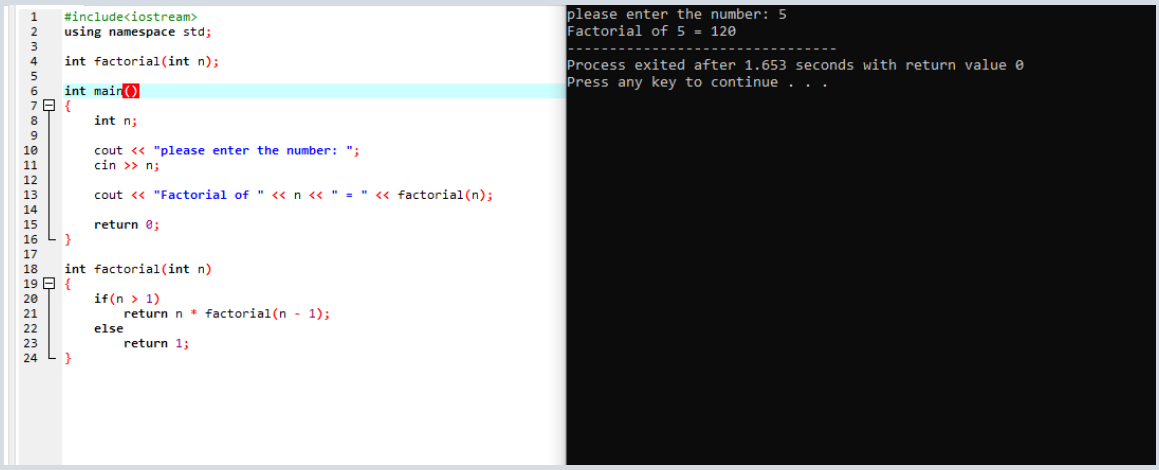
Q3: Using functions, write a C++ program to calculate the factorial of an integer number using the following formula:

$$n! = 1 \times 2 \times 3 \times \ldots\ldots\ldots \times (n-1) \times n$$

Code :

```
#include<iostream>
using namespace std;

int factorial(int n);

int main()
{
   int n;
   cout << "please enter the number: ";
   cin >> n;
   cout << "Factorial of " << n << " = " << factorial(n);

   return 0;
}

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

output :



Q4: Using functions, write a C++ program to determine if the number is Prime.

Code :

```
#include <iostream>
using namespace std;
bool check(int n) {
   bool isPrime = true;
   if (n == 0 || n == 1) {
      isPrime = false;}
   else {
      for (int i = 2; i <= n / 2; ++i) {
         if (n % i == 0) {
            isPrime = false;
            break;
         }} }
   return isPrime;
}
int main() {
   int n;
   cout << "please enter the number : ";
   cin >> n;
   if (check(n))
      cout << n << " is a prime number.";
   else
      cout << n << " is not a prime number.";
   return 0;}
```

Output :