JAMIA HAMDARD

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

School of Engineering Sciences & Technology

MCA 107- Object Oriented Programming Lab

ASSIGNMENT FILE

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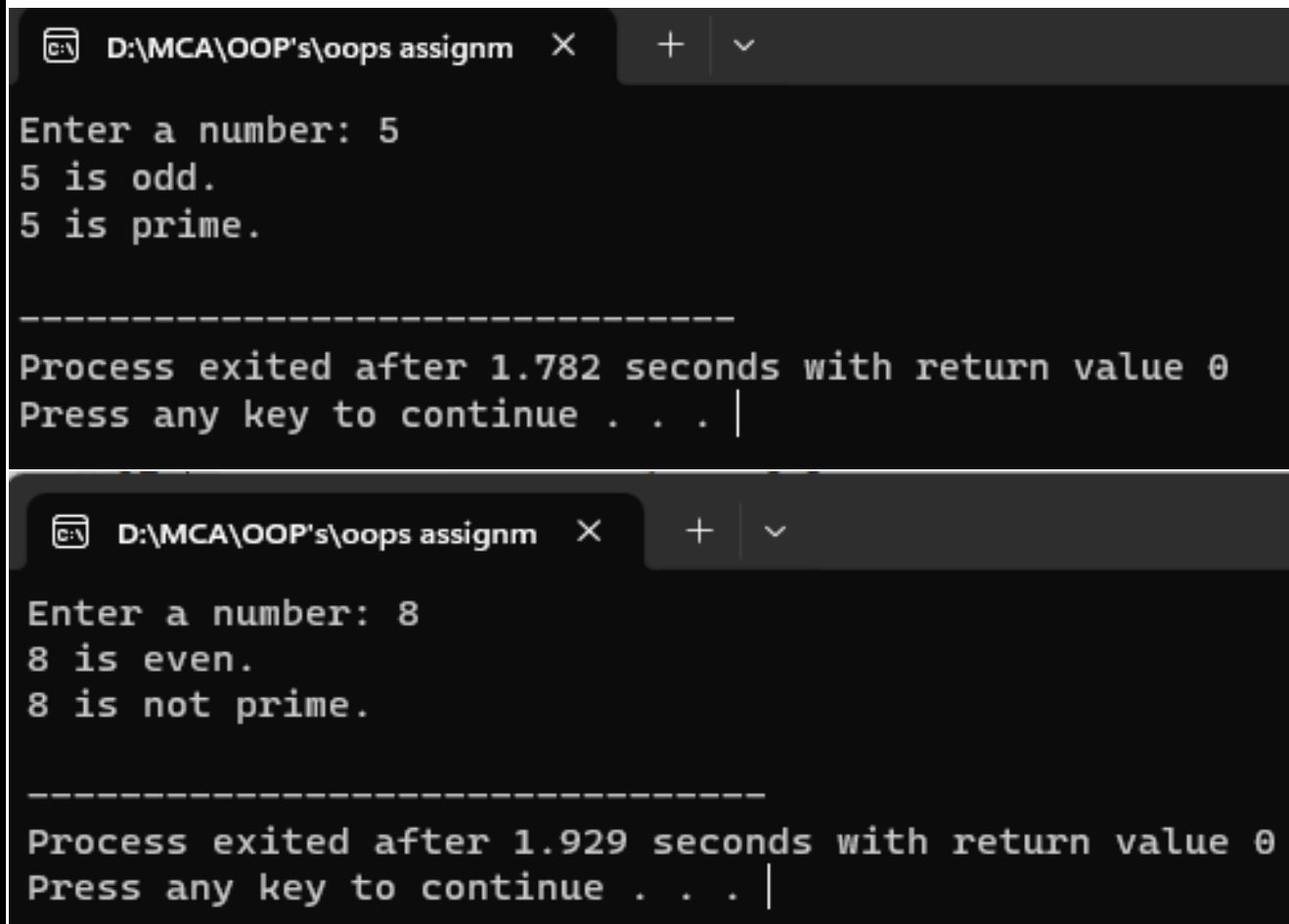**Enrolment no: - JH23-PGP-02037**

MCA- 1st Year | 1st Semester

Question 6. Create a class in c++ to check whether a number is even or odd and is prime.

Code:-

```cpp
#include <iostream>
using namespace std;
class NumberChecker {
public:
    NumberChecker(int num) {
        number = num;
    }

    bool isEven() {
        return (number % 2 == 0);
    }

    bool isOdd() {
        return (number % 2 != 0);
    }

    bool isPrime() {
        if (number <= 1)
            return false;
        if (number <= 3)
            return true;
        if (number % 2 == 0 || number % 3 == 0)
            return false;

        for (int i = 5; i * i <= number; i += 6) {
            if (number % i == 0 || number % (i + 2) == 0)
                return false;
        }
        return true;
    }

private:
    int number;
};

int main() {
    int num;
    cout << "Enter a number: ";
    cin >> num;

    NumberChecker checker(num);

    if (checker.isEven()) {
        cout << num << " is even." << endl;
    } else {
        cout << num << " is odd." << endl;
    }

    if (checker.isPrime()) {
        cout << num << " is prime." << std::endl;
    } else {
        cout << num << " is not prime." << std::endl;
    }
    return 0;
}
```

Output:-

Enter a number: 5
5 is odd.
5 is prime.

_____

Process exited after 1.782 seconds with return value 0
Press any key to continue . . . |

Enter a number: 8
8 is even.
8 is not prime.

_____

Process exited after 1.929 seconds with return value 0
Press any key to continue . . . |

Question 7. Create a student class with student_id, name, age & marks (multiple subjects).

Perform these operations:

1. Add a new student.

2. Display the information

Code:-

```cpp
#include <iostream>
#include <string.h>
using  namespace std;

class students{
    public:
        int student_id;
        char name[25];
        int age;
        int marks[3];

    void enterInfo(){
        cout << "Enter the Student Id: ";
        cin>>student_id;

        cout << "Enter name of the Student: ";
        cin>>name;

        cout << "Enter the age of the Student: ";
        cin>>age;
        cout << "Marks of Student are:"<<endl;
        for(int i=0;i<3;i++){
            cout << "Enter the marks"<<i+1<<": ";
            cin>>marks[i];
        }
        cout << "\nDetails Entered Successfully\n\n\n\n";
    }
    void getInfo(){
        cout << "Student id: "<<student_id<<endl;
        cout << "Name: "<<name<<endl;

        cout << "Age: "<<age<<endl;
        for(int i=0;i<3;i++){
            cout << "Marks: "<<marks[i]<<endl;
        }
    }

};

int main(){
    int num_of_students;
    cout << "**********Students Records**********"<<endl;
    cout << "Enter Number of Students: ";
    cin>>num_of_students;

    students s[num_of_students];

    for(int i=0;i<num_of_students;i++){
        s[i].enterInfo();
    }

    for(int j=0;j<num_of_students;j++){
        s[j].getInfo();
    }

}
```

Output:-

```
**********Students Records**********
Enter Number of Students: 3
Enter the Student Id: 1
Enter name of the Student: Sukaina
Enter the age of the Student: 21
Marks of Student are:
Enter the marks1: 92
Enter the marks2: 89
Enter the marks3: 93

Details Entered Successfully



Enter the Student Id: 2
Enter name of the Student: Fatima
Enter the age of the Student: 23
Marks of Student are:
Enter the marks1: 94
Enter the marks2: 88
Enter the marks3: 91

Details Entered Successfully
```

```
**********Students Records**********
Enter Number of Students: 3
Enter the Student Id: 1
Enter name of the Student: Sukaina
Enter the age of the Student: 21
Marks of Student are:
Enter the marks1: 92
Enter the marks2: 89
Enter the marks3: 93

Details Entered Successfully



Enter the Student Id: 2
Enter name of the Student: Fatima
Enter the age of the Student: 23
Marks of Student are:
Enter the marks1: 94
Enter the marks2: 88
Enter the marks3: 91

Details Entered Successfully
```