

STD: XII

COMPUTER SCIENCEPROGRAM – 1

[A] Calculate Factorial:

```

pg1a.py - C:/Users/Sysetm 5/AppData/Local/Programs/Python/Python37/Python37/p
File Edit Format Run Options Window Help
num=int(input("Enter a number:"))
if(num==0):
    fact=1
else:
    fact=1
for i in range(1,num+1):
    fact=fact*i
print("factorial of", num, "is", fact)

```

```

Python 3.7.0a2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0a2 (v3.7.0a2:f7ac4fe, Oct 17 2017, 17:06:29) [MSC v.1900 64 bit (AMD
64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/Sysetm 5/AppData/Local/Programs/Python/Python37/pg1a.py =
Enter a number:5
factorial of 5 is 1
factorial of 5 is 2
factorial of 5 is 6
factorial of 5 is 24
factorial of 5 is 120
>>> |

```

[B] Sum of Series:

```

pg1b.py - C:/Users/Sysetm 5/AppData/Local/Programs/Python/Python37/Python37/p
File Edit Format Run Options Window Help
n = int(input("Enter a value of n: "))
s = 0
for i in range(1,n+1):
    a= (i*i)/i
    s=s+a
print("The sum of the series is ", s)

```

```

Python 3.7.0a2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0a2 (v3.7.0a2:f7ac4fe, Oct 17 2017, 17:06:29) [MSC v.1900 64 bit (AMD
64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/Sysetm 5/AppData/Local/Programs/Python/Python37/pg1b.py =
Enter a value of n: 4
The sum of the series is 1.0
The sum of the series is 3.0
The sum of the series is 12.0
The sum of the series is 76.0
>>>

```

PROGRAM – 2

[A] Odd or Even:

```

pg2a.py - C:/Users/Sysetm 5/AppData/Local/Programs/Python/Python37/Python37/p
File Edit Format Run Options Window Help
def oddeven(a):
    if (a%2==0):
        return "Even"
    else:
        return "Odd"
num = int(input("Enter a number: "))
print("The given number is ", oddeven(num))

```

```

Python 3.7.0a2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0a2 (v3.7.0a2:f7ac4fe, Oct 17 2017, 17:06:29) [MSC v.1900 64 bit (AMD
64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/Sysetm 5/AppData/Local/Programs/Python/Python37/pg2a.py =
Enter a number: 2024
The given number is Even
>>>
= RESTART: C:/Users/Sysetm 5/AppData/Local/Programs/Python/Python37/pg2a.py =
Enter a number: 2025
The given number is Odd
>>> |

```

[B] Reverse the String:

pg2b.py - C:/Users/Sysetm 5/AppData/Local/Programs/Python/Python37/pg2b.py (3.7.0a2)

File Edit Format Run Options Window Help

```
def reverse(str1):
    str2=''
    for i in str1:
        str2 = i + str2
    return str2
word = input("\n Enter a String: ")
print("\n The reverse of the given string is: ", reverse(word))
```

Python 3.7.0a2 Shell

File Edit Shell Debug Options Window Help

Python 3.7.0a2 (v3.7.0a2:f7ac4fe, Oct 17 2017, 17:06:29) [MSC v.1900 64 bit (AMD 64)] on win32

Type "copyright", "credits" or "license()" for more information.

>>>

= RESTART: C:/Users/Sysetm 5/AppData/Local/Programs/Python/Python37/pg2b.py =

Enter a String: school

The reverse of the given string is: loohcs

>>> |

PROGRAM – 3

Generate values and remove odd numbers:

pg3.py - C:/Users/Sysetm 5/AppData/Local/Programs/Python/Python37/pg3.py (3.7.0a2)

File Edit Format Run Options Window Help

```
num = list(range(1,11))
print("Numbers from 1 to 10.....\n",num)
for i in num:
    if(i%2 == 1):
        num.remove(i)
print("The values after removing odd numbers.....\n",num)
```

Python 3.7.0a2 Shell

File Edit Shell Debug Options Window Help

Python 3.7.0a2 (v3.7.0a2:f7ac4fe, Oct 17 2017, 17:06:29) [MSC v.1900 64 bit (AMD 64)] on win32

Type "copyright", "credits" or "license()" for more information.

>>>

= RESTART: C:/Users/Sysetm 5/AppData/Local/Programs/Python/Python37/pg3.py ==

Numbers from 1 to 10.....

[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

The values after removing odd numbers.....

[2, 4, 6, 8, 10]

>>>

PROGRAM – 4

Generate prime numbers and set operations:

pg4.py - C:/Users/Sysetm 5/AppData/Local/Programs/Python/Python37/pg4.py (3.7.0a2)

File Edit Format Run Options Window Help

```
odd = set(range(1,10,2))
prime=set()
for i in range(2,9):
    for j in range(2,i):
        if (i%j==0):
            break
        else:
            prime.add(i)
print("Odd Numbers: ", odd)
print("Prime Numbers: ", prime)
print("Union: ", odd.union(prime))
print("Intersection: ", odd.intersection(prime))
print("Difference: ", odd.difference(prime))
print("Symmetric Difference: ", odd.symmetric_difference(prime))
```

Python 3.7.0a2 Shell

File Edit Shell Debug Options Window Help

Python 3.7.0a2 (v3.7.0a2:f7ac4fe, Oct 17 2017, 17:06:29) [MSC v.1900 64 bit (AMD 64)] on win32

Type "copyright", "credits" or "license()" for more information.

>>>

= RESTART: C:/Users/Sysetm 5/AppData/Local/Programs/Python/Python37/pg4.py ==

Odd Numbers: {1, 3, 5, 7, 9}

Prime Numbers: {3, 5, 7}

Union: {1, 3, 5, 7, 9}

Intersection: {3, 5, 7}

Difference: {1, 9}

Symmetric Difference: {1, 9}

>>> |

Generate prime numbers and set operations:

```

44 Generate prime numbers and set operations.py - C:\Users\Sysetm 5\AppData\Local\Programs\Python\Python37\5
File Edit Format Run Options Window Help
odd=set([x*2+1 for x in range (0,5)])
primes=set()
for i in range(2,10):
    j=2
    f=0
    while j<=i/2:
        if i%j==0:
            f=1
            j+=1
        if f==0:
            primes.add(i)
print("odd number:", odd)
print("prime number:", primes)
print("union:", odd.union(primes))
print("intersection:", odd.intersection(primes))
print("difference:", odd.difference(primes))
print("symmetric difference:", odd.symmetric_difference(primes))

Python 3.7.0a2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0a2 (v3.7.0a2:f7ac4fe, Oct 17 2017, 17:06:29) [MSC v.1900 64 bit (AMD 64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
RESTART: C:\Users\Sysetm 5\AppData\Local\Programs\Python\Python37\44 Generate p
rime numbers and set operations.py
odd number: {1, 3, 5, 7, 9}
prime number: {2, 3, 5, 7}
union: {1, 2, 3, 5, 7, 9}
intersection: {3, 5, 7}
difference: {1, 9}
symmetric difference: {1, 2, 9}
>>>

```

PROGRAM - 5

Display a string elements – using class:

```

5 Display a string elements.py - C:\Users\Sysetm 5\AppData\Local\Programs\Python\Python37\5 Display a
File Edit Format Run Options Window Help
class string:
    def __init__(self):
        self.u=0
        self.l=0
        self.v=0
        self.c=0
        self.s=0
        self.string=""
    def getstring(self):
        self.string=input("Enter a string: ")
    def count(self):
        for ch in self.string:
            if(ch.isupper()):
                self.u+=1
            if(ch.islower()):
                self.l+=1
            if(ch in ('A','a','E','e','I','i','O','o','U','u')):
                self.v+=1
            if(ch not in ('A','a','E','e','I','i','O','o','U','u',' ')):
                self.c+=1
            if(ch==" "):
                self.s+=1
    def display(self):
        print("The given string is :",self.string)
        print("Upper case Letter :",self.u)
        print("Lower Case Letter :",self.l)
        print("Vowels Letters :",self.v)
        print("Consonant Letters :",self.c)
        print("Spaces :",self.s)
obj=string()
obj.getstring()
obj.count()
obj.display()

Python 3.7.0a2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0a2 (v3.7.0a2:f7ac4fe, Oct 17 2017, 17:06:29) [MSC v.1900 64 bit (AMD 64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
RESTART: C:\Users\Sysetm 5\AppData\Local\Programs\Python\Python37\5 Display a s
tring elements.py
Enter a string: Welcome to Computer Science
The given string is : Welcome to Computer Science
Upper case Letter : 3
Lower Case Letter : 21
Vowels Letters : 10
Consonant Letters : 14
Spaces : 3
>>>|

```

PROGRAM – 6**MY SQL – Employee table:**

```

Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 4
Server version: 5.7.31 MySQL Community Server (GPL)

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> CREATE DATABASE EMP5;
Query OK, 1 row affected (0.00 sec)

mysql> USE EMP5;
Database changed
mysql> Create table EMP5 (Empno integer(4) primary key, Empname varchar(20), Desig varchar(10), Dept varchar(10), Age integer(2), Place varchar(10));
Query OK, 0 rows affected (0.01 sec)

mysql> Insert into EMP5 values(1221, 'Sidharth', 'Officer', 'Accounts', 45, 'Salem');
Query OK, 1 row affected (0.00 sec)

mysql> Insert into EMP5 values(1222, 'Naveen', 'Manager', 'Admin', 32, 'Erode');
Query OK, 1 row affected (0.00 sec)

mysql> Insert into EMP5 values(1223, 'Ramesh', 'Clerk', 'Accounts', 33, 'Ambathur');
Query OK, 1 row affected (0.00 sec)

mysql> Insert into EMP5 values(1224, 'Abinaya', 'Manager', 'Admin', 28, 'Anna Nagar');
Query OK, 1 row affected (0.00 sec)

mysql> Insert into EMP5 values(1225, 'Rahul', 'Officer', 'Accounts', 31, 'Anna Nagar');
Query OK, 1 row affected (0.00 sec)

mysql> select * from EMP5;
+-----+-----+-----+-----+-----+-----+
| Empno | Empname | Desig | Dept | Age | Place |
+-----+-----+-----+-----+-----+-----+
| 1221 | Sidharth | Officer | Accounts | 45 | Salem |
| 1222 | Naveen | Manager | Admin | 32 | Erode |
| 1223 | Ramesh | Clerk | Accounts | 33 | Ambathur |
| 1224 | Abinaya | Manager | Admin | 28 | Anna Nagar |
| 1225 | Rahul | Officer | Accounts | 31 | Anna Nagar |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)

```

Activate Windows
Go to Settings to activate Windows.

```
mysql> Insert into EMP5 values(3226, 'Veyil', 'Manager', 'Accounts', 42, 'Erode');
Query OK, 1 row affected (0.00 sec)
```

```
mysql> Insert into EMP5 values(3227, 'Pravit', 'Officer', 'Admin', 34, 'Salem');
Query OK, 1 row affected (0.00 sec)
```

```
mysql> select * from EMP5;
```

Empno	Empname	Desig	Dept	Age	Place
1221	Sidharth	Officer	Accounts	45	Salem
1222	Naveen	Manager	Admin	32	Erode
1223	Ramesh	Clerk	Accounts	33	Ambathur
1224	Abinaya	Manager	Admin	28	Anna Nagar
1225	Rahul	Officer	Accounts	31	Anna Nagar
3226	Veyil	Manager	Accounts	42	Erode
3227	Pravit	Officer	Admin	34	Salem

```
7 rows in set (0.00 sec)
```

```
mysql> Alter table EMP5 add(doj date);
```

```
Query OK, 7 rows affected (0.01 sec)
Records: 7 Duplicates: 0 Warnings: 0
```

```
mysql> Desc EMP5;
```

Field	Type	Null	Key	Default	Extra
Empno	int(4)	NO	PRI	NULL	
Empname	varchar(20)	YES		NULL	
Desig	varchar(10)	YES		NULL	
Dept	varchar(10)	YES		NULL	
Age	int(2)	YES		NULL	
Place	varchar(10)	YES		NULL	
doj	date	YES		NULL	

```
7 rows in set (0.00 sec)
```

```
mysql> update EMP5 set doj = '2010-03-21' where empno=1221;
```

```
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

```
mysql> update EMP5 set doj = '2012-05-13' where empno=1222;
```

```
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

```
mysql> update EMP5 set doj = '2017-10-25' where empno=1223;
```

```
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

```
mysql> update EMP5 set doj = '2018-06-17' where empno=1224;
```

```
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

```
mysql> update EMP5 set doj = '2018-01-02' where empno=1225;
```

```
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

```
mysql> update EMP5 set doj = '2017-12-31' where empno=3226;
```

```
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

```
mysql> update EMP5 set doj = '2015-08-16' where empno=3227;
```

```
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

```
mysql> select * from EMP5;
```

Empno	Empname	Desig	Dept	Age	Place	doj
1221	Sidharth	Officer	Accounts	45	Salem	2010-03-21
1222	Naveen	Manager	Admin	32	Erode	2012-05-13
1223	Ramesh	Clerk	Accounts	33	Ambathur	2017-10-25
1224	Abinaya	Manager	Admin	28	Anna Nagar	2018-06-17
1225	Rahul	Officer	Accounts	31	Anna Nagar	2018-01-02
3226	Veyil	Manager	Accounts	42	Erode	2017-12-31
3227	Pravit	Officer	Admin	34	Salem	2015-08-16

```
7 rows in set (0.00 sec)
```

```
mysql> select * from EMP5 where empno is null;
```

```
Empty set (0.00 sec)
```

```
mysql> Select * from EMP5 where doj > '2018-01-01';
```

Empno	Empname	Desig	Dept	Age	Place	doj
1224	Abinaya	Manager	Admin	28	Anna Nagar	2018-06-17
1225	Rahul	Officer	Accounts	31	Anna Nagar	2018-01-02

```
2 rows in set (0.00 sec)
```

```
mysql>
```

PROGRAM – 7

MY SQL – Student table:

c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe

Enter password:

Welcome to the MySQL monitor. Commands end with ; or \g.

Your MySQL connection id is 7

Server version: 5.7.31 MySQL Community Server (GPL)

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Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> CREATE DATABASE STUDENT1;

Query OK, 1 row affected (0.00 sec)

mysql> USE STUDENT1;

Database changed

mysql> Create table Student1 (Reg_No char(5), Sname varchar(20), Age integer(2), Dept varchar(10), Class char(3));

Query OK, 0 rows affected (0.01 sec)

mysql> Desc STUDENT1;

Field	Type	Null	Key	Default	Extra
Reg_No	char(5)	YES		NULL	
Sname	varchar(20)	YES		NULL	
Age	int(2)	YES		NULL	
Dept	varchar(10)	YES		NULL	
Class	char(3)	YES		NULL	

5 rows in set (0.00 sec)

mysql> Insert into STUDENT1 values ('M1001', 'Veyil', 19, 'ME', 'ME1');

Query OK, 1 row affected (0.00 sec)

mysql> Insert into STUDENT1 values ('M1002', 'Pravit', 20, 'ME', 'ME2');

Query OK, 1 row affected (0.00 sec)

mysql> Insert into STUDENT1 values ('C1001', 'Sudharsan', 20, 'CSE', 'CS1');

Query OK, 1 row affected (0.00 sec)

mysql> Insert into STUDENT1 values ('C1002', 'Karthick', 19, 'CSE', 'CS2');

Query OK, 1 row affected (0.00 sec)

```
mysql> Insert into STUDENT1 values ('E1001', 'Cheguvera', 20, 'ECE', 'EC1');
Query OK, 1 row affected (0.00 sec)

mysql> Insert into STUDENT1 values ('E1002', 'Surya', 21, 'EEE', 'EE1');
Query OK, 1 row affected (0.00 sec)

mysql> Insert into STUDENT1 values ('E1003', 'Sudharshini', 20, 'ECE', 'EC2');
Query OK, 1 row affected (0.00 sec)

mysql> select * from STUDENT1;
+-----+-----+-----+-----+-----+
| Reg_No | Sname      | Age | Dept | Class |
+-----+-----+-----+-----+-----+
| M1001  | Veyil      | 19  | ME   | ME1   |
| M1002  | Pravit     | 20  | ME   | ME2   |
| C1001  | Sudharsan  | 20  | CSE  | CS1   |
| C1002  | Karthick   | 19  | CSE  | CS2   |
| E1001  | Cheguvera  | 20  | ECE  | EC1   |
| E1002  | Surya      | 21  | EEE  | EE1   |
| E1003  | Sudharshini | 20  | ECE  | EC2   |
+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)

mysql> Select * from STUDENT1 where Dept='CSE';
+-----+-----+-----+-----+-----+
| Reg_No | Sname      | Age | Dept | Class |
+-----+-----+-----+-----+-----+
| C1001  | Sudharsan  | 20  | CSE  | CS1   |
| C1002  | Karthick   | 19  | CSE  | CS2   |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> Select * from STUDENT1 where Age >=20 and Dept='ME';
+-----+-----+-----+-----+-----+
| Reg_No | Sname      | Age | Dept | Class |
+-----+-----+-----+-----+-----+
| M1002  | Pravit     | 20  | ME   | ME2   |
+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

```
mysql> Select * from STUDENT1 Group by Dept Order by Sname;
```

Reg_No	Sname	Age	Dept	Class
E1001	Cheguvera	20	ECE	EC1
C1001	Sudharsan	20	CSE	CS1
E1002	Surya	21	EEE	EE1
M1001	Veyil	19	ME	ME1

```
4 rows in set (0.00 sec)
```

```
mysql> Update STUDENT1 set Class='ME1' where Class='ME2';
```

```
Query OK, 1 row affected (0.00 sec)
```

```
Rows matched: 1 Changed: 1 Warnings: 0
```

```
mysql> select * from STUDENT1;
```

Reg_No	Sname	Age	Dept	Class
M1001	Veyil	19	ME	ME1
M1002	Pravit	20	ME	ME1
C1001	Sudharsan	20	CSE	CS1
C1002	Karthick	19	CSE	CS2
E1001	Cheguvera	20	ECE	EC1
E1002	Surya	21	EEE	EE1
E1003	Sudharshini	20	ECE	EC2

```
7 rows in set (0.00 sec)
```

```
mysql> Select Distinct Reg_No from STUDENT1;
```

Reg_No
M1001
M1002
C1001
C1002
E1001
E1002
E1003

```
7 rows in set (0.00 sec)
```