# Experiment No. 12

## Aim:
Write a simple program in SCALA using Apache Spark framework

## Objective:
To write a simple program in scala using Apache Spark framework.

## Theory:

What is Scala?
Scala is an acronym for "Scalable Language". It is a general-purpose programming language designed for the programmers who want to write programs in a concise, elegant, and type-safe way. Scala enables programmers to be more productive. Scala is developed as an object-oriented and functional programming language.

If you write a code in Scala, you will see that the style is similar to a scripting language. Even though Scala is a new language, it has gained enough users and has a wide community support. It is one of the most user-friendly languages.
The design of Scala started in 2001 in the programming methods laboratory at EPFL (École Polytechnique Fédérale de Lausanne). Scala made its first public appearance in January 2004 on the JVM platform and a few months later in June 2004, it was released on the .(dot)NET platform. The .(dot)NET support of Scala was officially dropped in 2012. A few more characteristics of Scala are

- Scala is pure Object-Oriented programming language
- Scala is a functional language
- Scala is a compiler based language (and not interpreted)

**Installing Scala**
Scala can be installed in any Unix or windows based system. Below are the steps to install for Ubuntu (14.04) for scala version 2.11.7. I am showing the steps for installing Scala (2.11.7) with Java version 7. It is necessary to install Java before installing Scala. You can also install latest version of Scala(2.12.1) as well.

**Step 0:** Open the terminal

**Step 1:** Install Java

```
$ sudo apt-add-repository ppa:webupd8team/java
$ sudo apt-get update
$ sudo apt-get install oracle-java7-installer
```

If you are asked to accept Java license terms, click on "Yes" and proceed. Once finished, let us check whether Java has installed successfully or not. To check the Java version and installation, you can type:

```
$ java -version
```

**Step 2:** Once Java is installed, we need to install Scala

```
$ cd ~/Downloads
$ wget http://www.scala-lang.org/files/archive/scala-2.11.7.deb
$ sudo dpkg -i scala-2.11.7.deb
$ scala –version
```

This will show you the version of Scala installed

**Prerequisites for Learning Scala**

Scala being an easy to learn language has minimal prerequisites. If you are someone with basic knowledge of C/C++, then you will be easily able to get started with Scala. Since Scala is developed on top of Java. Basic programming function in Scala is similar to Java. So, if you have some basic knowledge of Java syntax and OOPs concept, it would be helpful for you to work in Scala.

**Choosing a development environment**

Once you have installed Scala, there are various options for choosing an environment. Here are the 3 most common options:

- Terminal / Shell based
- Notepad / Editor based
- IDE (Integrated development environment)

- **Algorithm:**

- **Applications:**

- **Input:**

- **Output:**

- **Conclusion:**

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- **Outcome:**

  Upon completion of this experiment, students will be able to: