PRACTICAL: 3

AIM: Create an application that will display Toast (Message) on specific interval of time.

THEORY:

About elements used:

Digital Clock: Digital clock is a widget used to display the hours minutes and seconds in digital format.

About Functions and classes used:

Runnable class: Runnable is an interface that is to be implemented by a class whose instances are intended to be executed by a thread. There are two ways to start a new Thread – Subclass Thread and implement Runnable . There is no need of sub classing Thread when a task can be done by overriding only run() method of Runnable .

Timer class: Timer class provides a method call that is used by a thread to schedule a task, such as running a block of code after some regular instant of time. Each timer object is associated with a background thread that is responsible for the execution of all the tasks of a timer object.

CODE:

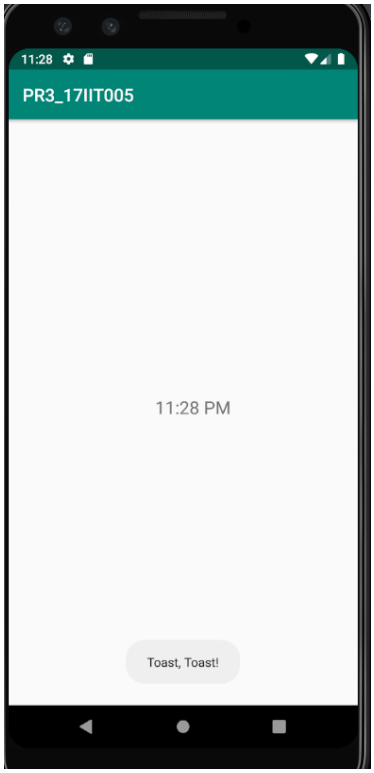
Activity_main.xml

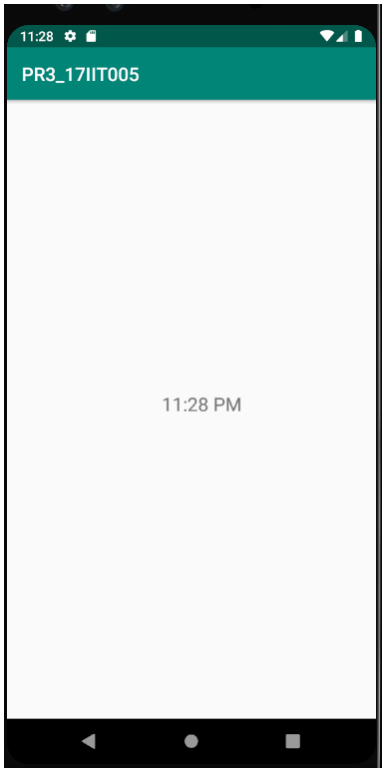
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <DigitalClock
        android:layout_width="123dp"
        android:layout_height="79dp"
        android:paddingLeft="30dp"
        android:paddingTop="20dp"
        android:paddingBottom="20dp"
        android:textSize="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

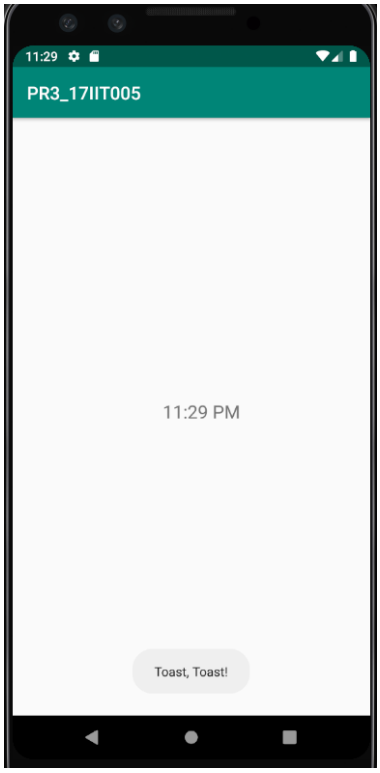
MainActivity.java

```
package com.example.pr3_17iit005;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Context;
import android.os.Bundle;
import android.os.Handler;
import android.widget.Toast;

import java.util.Timer;
import java.util.TimerTask;

public class MainActivity extends AppCompatActivity {
    Timer t = new Timer();
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        final Handler h = new Handler();
        final Runnable r = new Runnable() {
            @Override
            public void run() {
                Toast.makeText(getApplicationContext(),"Toast,
Toast!",Toast.LENGTH_SHORT).show();
            }
        };
        t.scheduleAtFixedRate(new TimerTask() {
            @Override
            public void run() {
                h.post(r);
            }
        },1000,5000);
    }
}
```

OUTPUT:







Here, in first screenshot first toast appears at 11:28 and then as seen in second and third screenshot, the second toast appears at 11:29.

LATEST APPLICATIONS: The applications that provide us toast messages at specific intervals or other applications that have toast messages on any particular actions like, the sim card or sd card notification, or the roaming sim notification also work on this functionality.

LEARNING OUTCOME: To create toast messages on specific interval of time we implement runnable class and override run method to create toast message. Also we use Time class to implement run method to have toasts at our specified intervals.