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Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

School of Computer Science and Engineering (SCOPE)

B.Tech. Winter 2020-2021

CSE2005: OPERATING SYSTEMS

LINE-UP

Course Faculty:

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Acknowledgement

I would like to express my special thanks to my teacher Dr. Braveen sir who gave me the golden opportunity to do this wonderful project on the topic “Line-Up” which also helped me in doing and learning a lot of things about this subject and I came to know about so many new things. I am really thankful to them.

Secondly, I would also like to extend my gratitude to my parents and friends who helped me a lot in finalizing this project within the limited time frame and all possible resources.

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Abstract

Operating Systems is a subject we can explore various applications of new technologies and uses of various Data structures and Algorithms and apply them to solve some of the major real-world problems which we face in our day-to-day life. Similarly, in this project “Line-up” keeping in mind the current scenario of pandemic and otherwise as well, we have developed an application which focuses on the health safety of a person and especially in these times.

This app focuses on the problem where people have to stand in queues for long hours in hot sun whenever we go to any market or to any office or a restaurant. This application reduces the crowd gathering by giving a token to all the customers who are standing in queues so that they can rest at their place and go when their chance comes.

Introduction

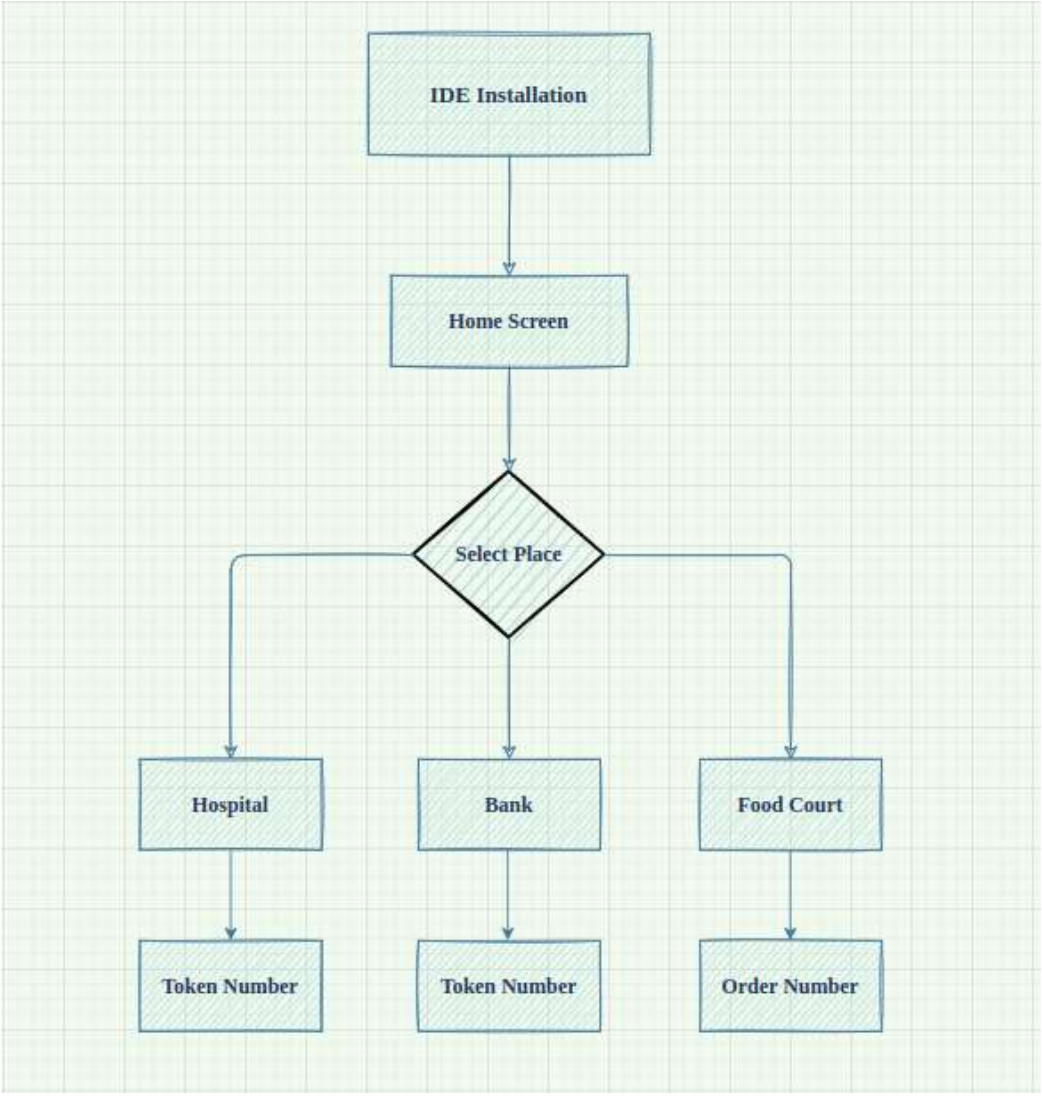
In this project, a situation in our daily life is considered. This project cares for the situation of a bank, restaurant and a hospital. In all of these places we have to stand in lines for long hours. Just to reduce the crowd, this app gives tokens to the customers standing in line so that they can rest and stay at their own places without having to stand in queues. This application consists of four parts the first part is having three options with the area in a restaurant whether you are in a bank or whether you are in a hospital when you choose your options that app will be redirecting you to a page where you have to put all your personal details and those details will be stored in a database, in a queue and according to that and according to that you will be given your token numbers. By doing this, the customer need not stand in a queue, they can wait for their token numbers or wait for their chance to come and then they can go to the respective counters and complete their queries.

Motivation

The scenario which grabbed our attention was the haphazard situation that arises at public places such as hospitals, restaurants and banks. In these places we have to stand in long queues to wait for our turn and get our queries resolved. We sometimes may have to wait for our orders to get delivered at a restaurant. But while standing in queues some health issues might arise as a result crowd would increase, especially COVID-19 guidelines will be violated. Hence, to make a system where people can stay at their place but still be present in queues virtually by using token numbers, gave us the idea of developing this application which provides token numbers to people who want to visit a particular place.

Steps Followed

We followed the following steps while making this project:



Source Codes

Home Screen:

```
public class MainActivity extends AppCompatActivity {

    private Button button1,button2,button3;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        button1 = findViewById(R.id.button1);
        button2 = findViewById(R.id.button2);
        button3 = findViewById(R.id.button3);

        button1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent intent = new Intent(MainActivity.this,MainActivity1.class);
                startActivity(intent);
            }
        });
        button2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent intent = new Intent(MainActivity.this,MainActivity2.class);
                startActivity(intent);
            }
        });
        button3.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent intent = new Intent(MainActivity.this,MainActivity3.class);
                startActivity(intent);
            }
        });

    }
}
```

Hospital Screen:

```
public class MainActivity1 extends AppCompatActivity {

    private EditText name,mobile;
    private TextView result;
    @SuppressLint("SetTextI18n")
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main1);

        name = findViewById(R.id.name);
        mobile = findViewById(R.id.mobile);
        result = findViewById(R.id.result);
        Button submit = findViewById(R.id.submit);
        Button status = findViewById(R.id.status);
        Queue<String> queue = new LinkedList<>();
        queue.add("Prakriti");
        queue.add("Aviral");
        queue.add("Priyank");

        submit.setOnClickListener(v -> {
            queue.add(name.getText().toString());
            name.setText("");
            mobile.setText("");
            Toast.makeText(MainActivity1.this, "Your name has been added to the queue :)",
Toast.LENGTH_SHORT).show();
        });

        status.setOnClickListener(v -> result.setText("Your token number is: "+ queue.size()));


    }
}
```

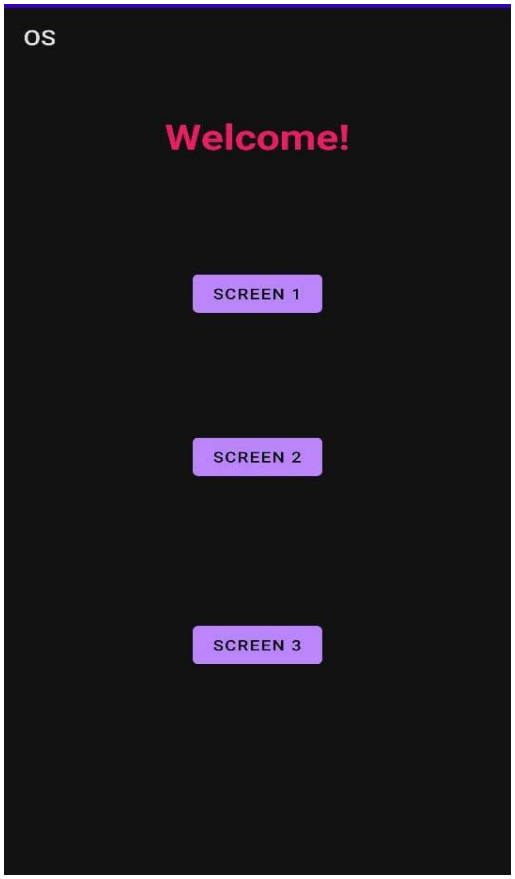
Food court:

```
public class MainActivity2 extends AppCompatActivity {
    private EditText cost;
    private TextView result;
    List<Integer> orders = new ArrayList<Integer>();

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);

        cost = findViewById(R.id.cost);
        result = findViewById(R.id.resulttxt);
        orders.add(45);
        orders.add(243);
        orders.add(23);
        orders.add(143);
        orders.add(443);
        Button tokenbtn = findViewById(R.id.calc);

        tokenbtn.setOnClickListener(new View.OnClickListener() {
            @SuppressLint("SetTextI18n")
            @Override
            public void onClick(View v) {
                int amt = Integer.parseInt(cost.getText().toString());
                orders.add(amt);
                Toast.makeText(MainActivity2.this, "added", Toast.LENGTH_SHORT).show();
                Collections.sort(orders);
                for (int i = 0; i < orders.size(); i++) {
                    if (orders.get(i) == amt){
                        result.setText("Your token is: "+String.valueOf((i+1)));
                    }
                }
            }
        });
    }
}
```

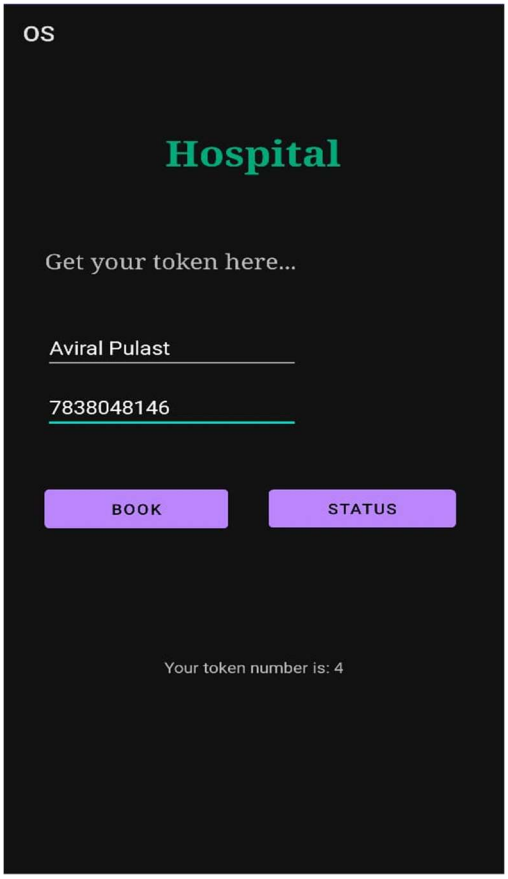
Bank Screen:

```
public class MainActivity3 extends AppCompatActivity {

    private EditText cost;
    private TextView result;
    private int amt ;
    @SuppressLint("SetTextI18n")
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main3);

        cost = findViewById(R.id.amount);
        result = findViewById(R.id.tokresult);
        Button submit = findViewById(R.id.banksubmit);
        Queue<Integer> amounts = new LinkedList<Integer>();
        amounts.add(2000);
        amounts.add(1000);
        amounts.add(2231);
        amounts.add(2342);


        submit.setOnClickListener(v -> {
            amt = Integer.parseInt(cost.getText().toString());
            amounts.add(amt);
            cost.setText("");
            Toast.makeText(this, "Added", Toast.LENGTH_SHORT).show();
            result.setText("Your waiting number is: "+ amounts.size());
        });

    }
}
```

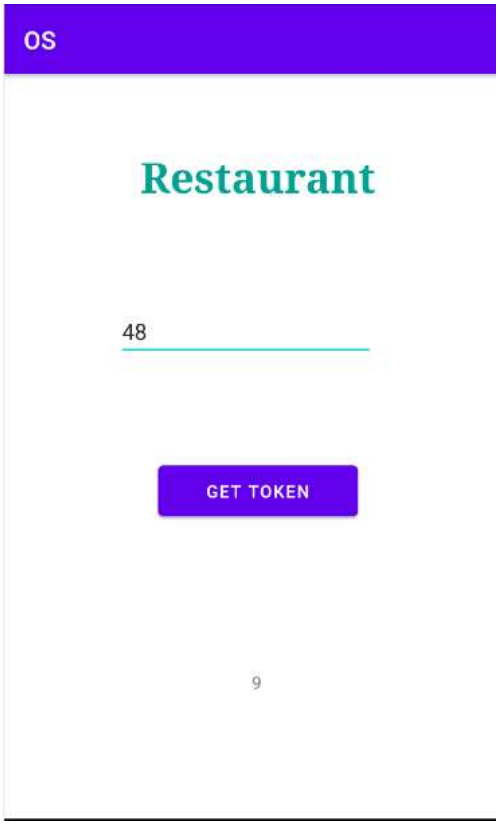
Results



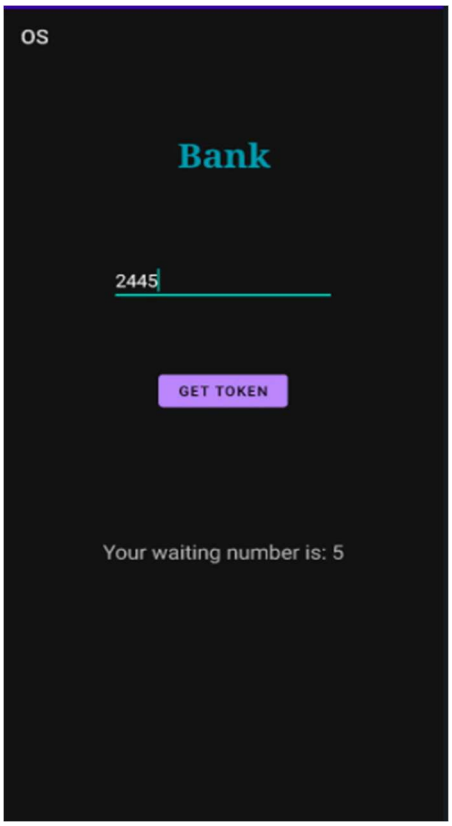
Welcome Page



Screen1 (Hospital page)



Screen2 Restaurant Page



Screen3 Bank Page

Video Demo (Result)

Drive link to the video demo:

https://drive.google.com/file/d/1vCQlfG7EAqLO249c8K3AHxVzjvDEQmof/view?usp=sharing

Conclusion

As operating systems is a subject where there is a never-ending growth of Technology and techniques to implement various data structures, various other Technologies can see a growth and a need for applications IN near futures which are able to solve real world problems by using advanced technologies.

As we come towards the end of this project, we can say that this project has helped us learn a lot about Java language, Android studio and various data structures which are implemented in this project. There are various other resources which we referred to and through which we have learnt the proper and the real-world industrial use of Java language. We are very grateful to complete this project and in the near future we can always see a great scope for this project as there is a high need for an application which is able to segregate the crowd which is able to reduce the waiting time for customers standing in long queues.