QR Code generator & Info extractor

TOC Innovative Work Semester 5

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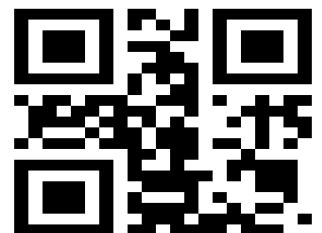**Sourabh Bhardwaj - 2K18/IT/121**

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INTRODUCTION

Quick Response (QR) codes are very popular and can be found anywhere these days. We can spot many QR codes on textbooks, product ads, websites, product packaging and Nowadays payment apps are getting popular that uses Qr code. The possibilities are limitless. The QR code can be used as one of the most fascinating ways of connecting consumers digitally via mobiles since the mobile phones have become a basic necessity thing of everyone & also to overcome the headache of sharing long paragraphs in the text format. In this paper, we present a prototype that creates QR codes by which the users enter text into a web browser and get the QR code generated and then another user can scan the generated QR code and the prototype will extract the useful information from the text using Reg-ex and auto fill-up the form. The experiment was conducted using single and multiple lines of text in English. The result shows that the prototype i.e QR code outputs were successfully and correctly generated alongside the information extracted is successfully filled in the form.

This project report focuses on an interactive web-based application called "QR Code Generator & Info extractor". This new web-based QR code Text generator and info extractor for auto form fill up for smartphones will allow the user to send their long paragraph texts to someone by using QR Code instead of sending the lengthy text of personal info. The receiver will be able to quickly extract only useful information and fill it in the form. Sometimes, we might not realize that we probably are sharing our personal information that can be read by any third party accidentally or intentionally. Therefore, in order to increase security and privacy when sending some personal info text to other users, the user can send the safer QR Code. Apart from that, the QR Code also can be merged into a person's business and help them with marketing. Besides, All the influencers, politicians that want to mass appeal can share the Qr Code with the masses. The goal of this project is to develop a web-based QR Code generator & Info extractor which helps the user to send their personal info texts word etc and receiver will able to quickly extract the useful information from it and fill the form.

Problem Description

In these new internet era everyone looking for a alternative to pass the Information efficiently . We took a real life problem

1.Here a person wants to share a information with another person but doesn't want any third party apps or person to read or steal that information and also want to convey his message in a short form.

2.Here the receiver doesn't want to read the complete text of a sender as it can be a laborious task , He wants a program that can read and extract only that information that is useful to him and fill these up in the form (these receiver can Be a merchant receiving heavy no. of registrations or anything)

PROPOSED APPROACH

ASSUMPTIONS

1. We have assumed that reciever only get QR code that is less than 30% distorted .
2. We have taken that sender is convinced by generating QR code of H level Right now but we can change it any time.

PROPOSED ALGORITHM

We have chosen react js for this project , React is a library of javascript for building user interfaces , it is developed by FACEBOOK.
The GUI of our project solely developed in react js.
Our code has been divided into 3 Parts :

1. Generate Your Own QR code.
2. Scan and Extract Information from the QR code.
3. Application like AUTO FILL FORM .

1 Generate :

To make information sharing easier and with high security we have made this app using a react component

`npm install qrcode.react` **[1]**

To make it user friendly we have set this component properties as size={290} and level={"H"} . We have other levels too like 'L' , 'M' ,'Q' .
We can change them any anytime in our code according to the user's preference.
Also we have added download functionality in our code.So that user can save the QR code (which has been generated) in the form of png.
To make the UI and make the user experience better we have implemented css styling in our code like adding background color, background image and with proper padding etc.

2 Scan :

To scan the QR code we have used a react component , by using
 npm install --save react-qr-scanner [2]
We have used properties like
1 Delay - the delay between two scans.It should be initialised with a value in milliseconds and it has a default value of 500 milliseconds.
2 Facing Mode - We can choose which camera mode should be used Front or rear.
3 onScan - It is a required function which gives the resulting value.
event handler called after every scan and gives the result or null if no qr code is scanned.
The function of this component is to scan the QR Code and give us the resulting information ,all things are managed by the react hook (setState) .
Initially we set the result value as an empty string , after every scan this react hook comes in the picture and sets the value of result equal to the required value.
Then after we have implemented regex on this result
1. To extract the Phone number we have used
   text.match(/([+]?\d{1,2}?)?(\d{3}?){2}\d{5}/g,' ')
   And then store all the phone numbers (present in the scanned result) in a map and then print them in the form of an unordered list.
2. To extract the Email address we have used

text.match(/([a-zA-Z0-9._-]+@[a-zA-Z0-9._-]+\.[a-zA-Z0-9._-]+)/gi,' ')
And then store all the email address (present in the scanned result) in a map and then print them in the form of an unordered list.
3. To extract the URL we have used
text.match(/(https?:\/\/[^\s]+)/g,' ')
And then store all the urls(present in the scanned result) in a map and then print them in the form of an unordered list.

3 **APPLICATION (SIGNUP FORM)**

Using react and its hooks we have made an application to auto fill up the signup or any kind of form using regex
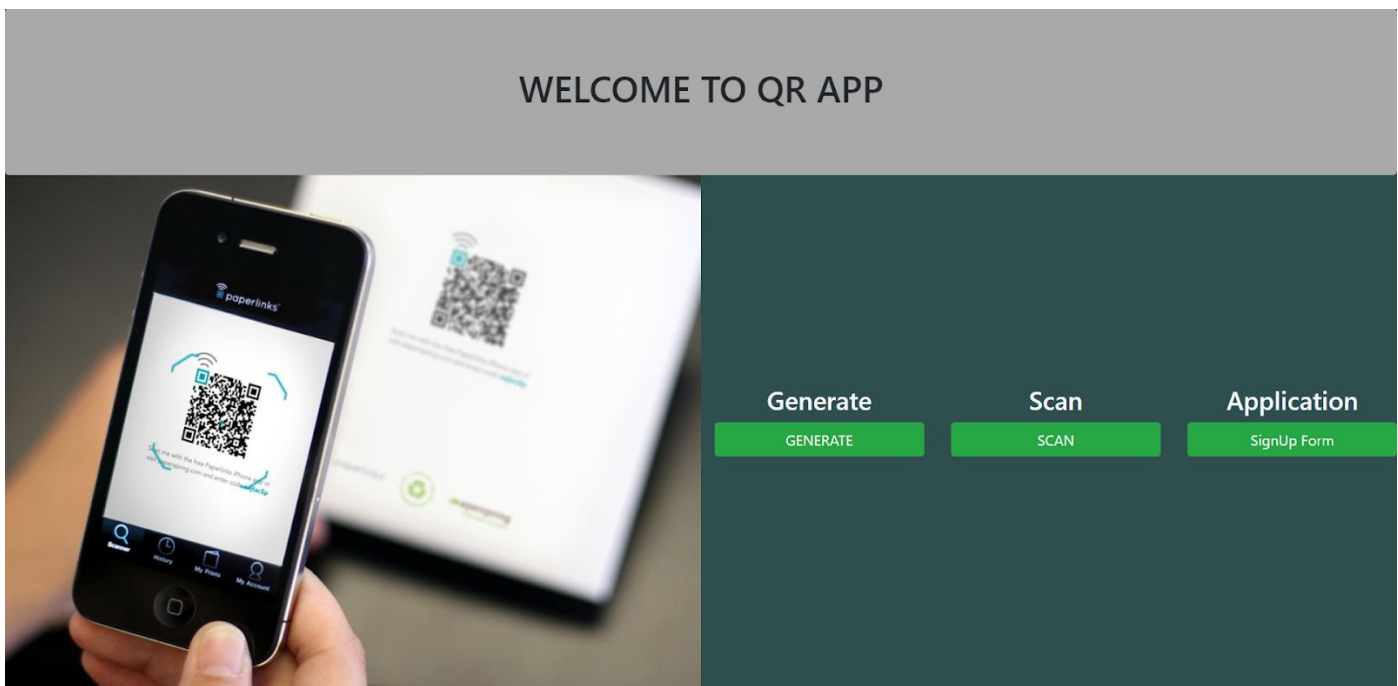1 We have to scan a QR code
2 Retrieve the general things like email address ,phone number from the scanned QR code with the help of regex.
3 Using react hooks we have made a function to auto fill the form after retrieval of details.

WEB DESIGN

By using css with the react we have made a user friendly GUI which is easy to use and user can easily retrieve the data from the QR code and can also easily use it as an autofill signup form etc;
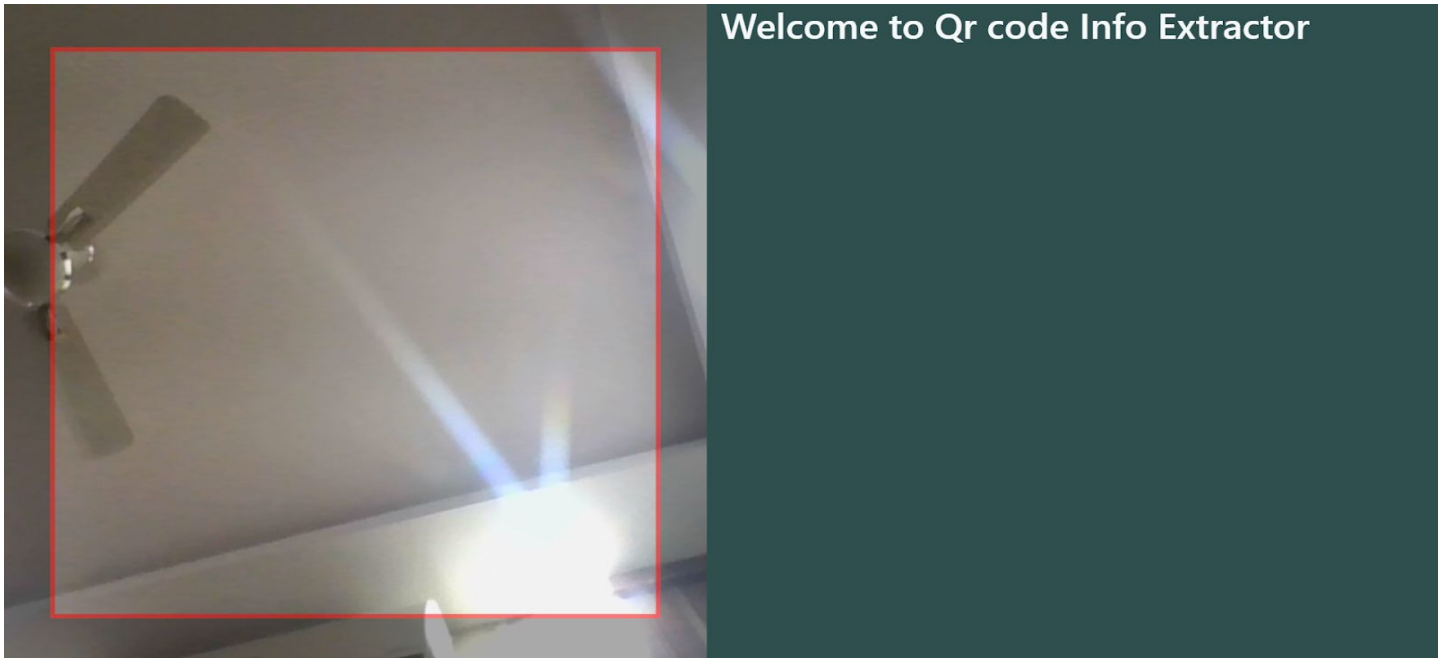
HOMEPAGE

(Website Homepage Fig1)

This is website's Homepage.

We have made 3 buttons (Generate,Scan and Signup)aligned in a row using bootstrap and css with purpose self explanatory.

QR Code info Extractor

(Qr code info extractor Fig 2)

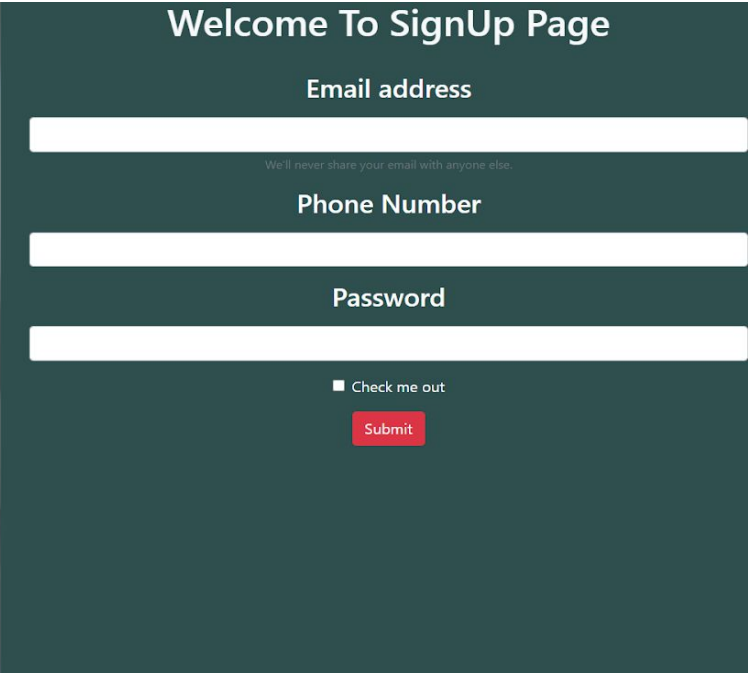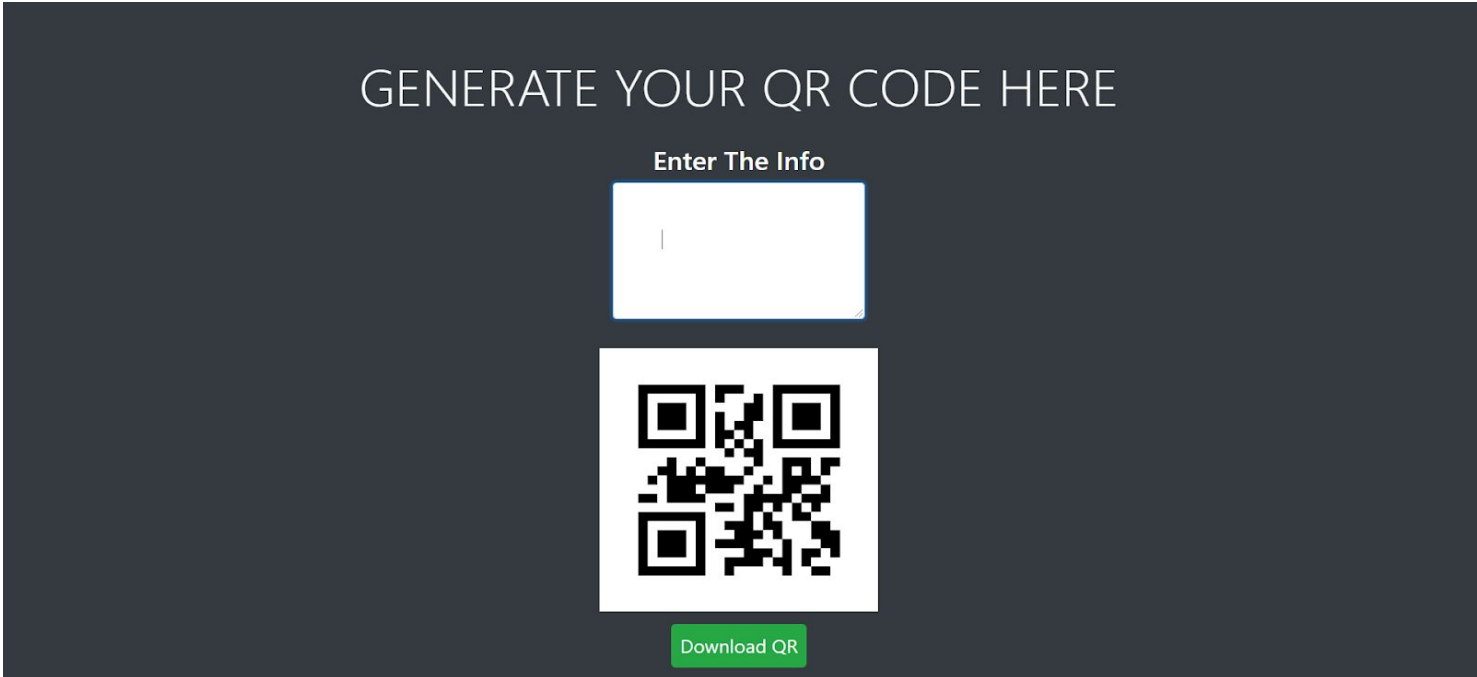We have divide the webpage into two sections:
1 Left side for the scanner part (INPUT)

- Take input through webcam that will be shown in real time at the left side of the page.

2 Right side for the information part (OUTPUT)

- Corresponding to the input , output will be shown at right side of the page.

Code generator & Auto fill Form

IMPLEMENTATION DETAILS OR PROGRESS

Programming Language(s)	HTML,CSS,JAVASCRIPT
Operating System	WINDOWS
Library Packages or APIs used (if any)	Qrcode.react , react-qr-scanner
Interface Design (GUI / Web / Other)	WEB APP
Database Package (if any)	
Servers Used (if any)	localhost:3000

INPUT FORMAT :

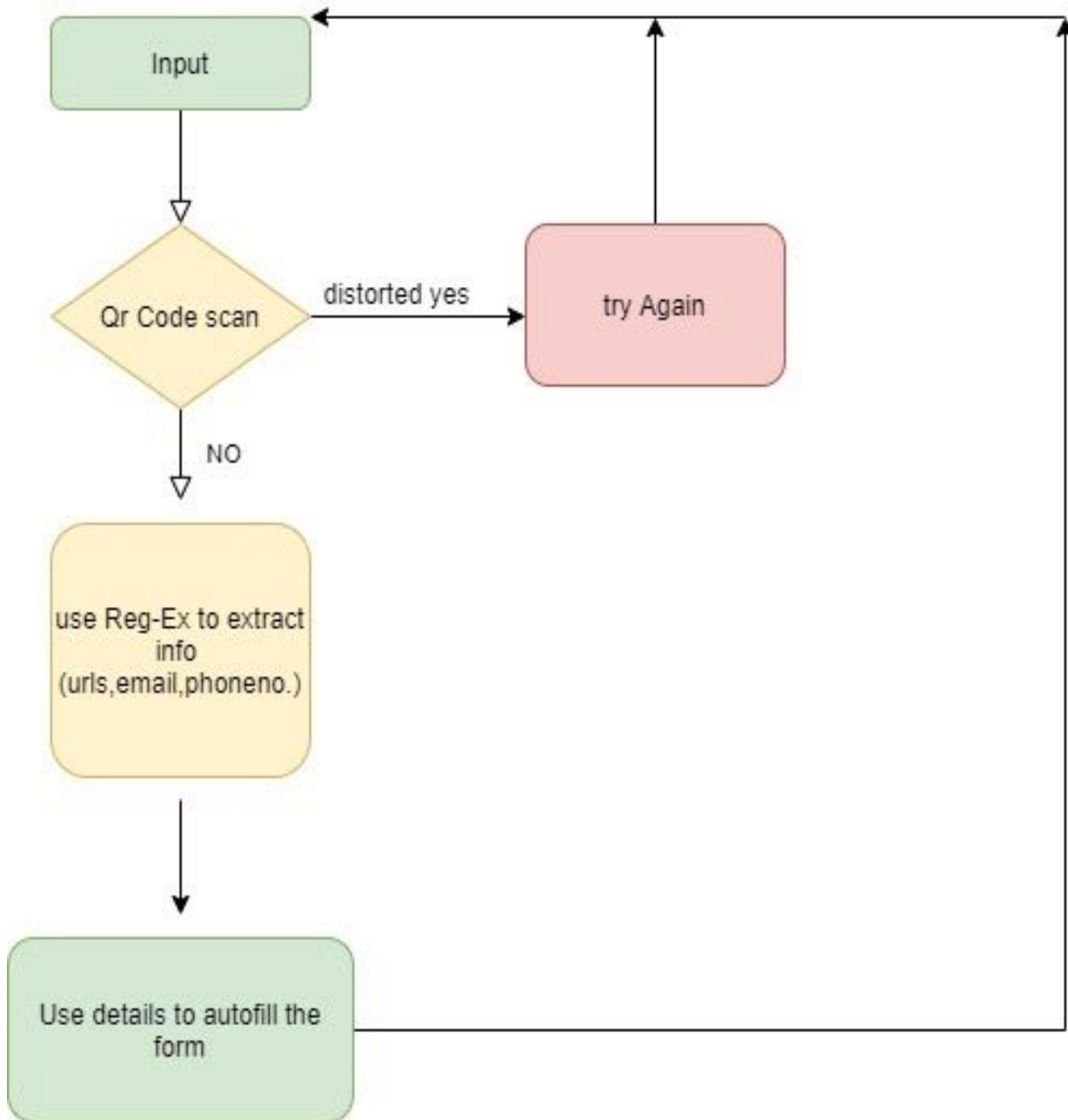We have made a real time application in which
1. At generation of QR code user has to type the details
2. At the scanning section user has to display a Qr code in front of webcam
3. At the time if Autofill user has to show QR code in front of webcam.

OUTPUT FORMAT :

1. At generation section output will be downloaded in the user's device.
2. At scanning section output will be shown at the screen.
3. At Autofill section signup form will be automatically filled.

Flow chart

Conclusion

We have successfully implemented a prototype that can generate the Qr code that is a compact form of large information and by using this generated Qr Code we can auto fill any type application form.

This project has a future aspects to use as infoTags , in marketing to provide a large info within small canvas , website & auto filling of application forms.

REFERENCES

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[1] https://www.npmjs.com/package/qrcode.react
[2] https://www.npmjs.com/package/react-qr-scanner