**Project ID: SPS\_PRO\_1653**

**Application ID: SPS\_CH\_APL\_20200004249**

**Team Name: Public Transport Management Team**

**Project Title: INTELLIGENT POST-LOCKDOWN MANAGEMENT**

**SYSTEM FOR PUBLIC TRANSPORTATION**

***Project Description:***

In many bus companies, passengers board the bus at the front and pay for their ticket or show it to the driver. This is not only an operative headache but also a permanent health burden for the driver. For this reason, many public transport operators now prohibit passengers from boarding at the front and no longer sell tickets on the bus. This should become the rule even without a spreading virus and accelerate the transition to electronic and contactless ticketing/payment (e. g. smart cards, QR-code based ticketing/payment).

Users can use apps getting appointments to enter two of the busiest subway stations during peak times. In works via a QR-Code on user's phones that is valid for a half-hour time slot to enter the station.

***Solution:***

The solution for this type of problem is developing an intelligent app to schedule the timing of transportation, avoiding the over occupancy of public transport or bus station or railway station etc. Post lockdown, it will be risky to allow the public transportation without proper mechanism to maintain the social distancing, especially the frequency of buses, trains and metros shall be managed properly to utilize the capacity with social distancing criteria. The transport authorities must integrate together to maintain the system properly.

***Category:*** IBM Cloud Application

**TOPIC: ONLINE TICKET BOOKING SYSTEM AND PAYMENT USING QR-CODE**

**1. User login and Ticket booking:**

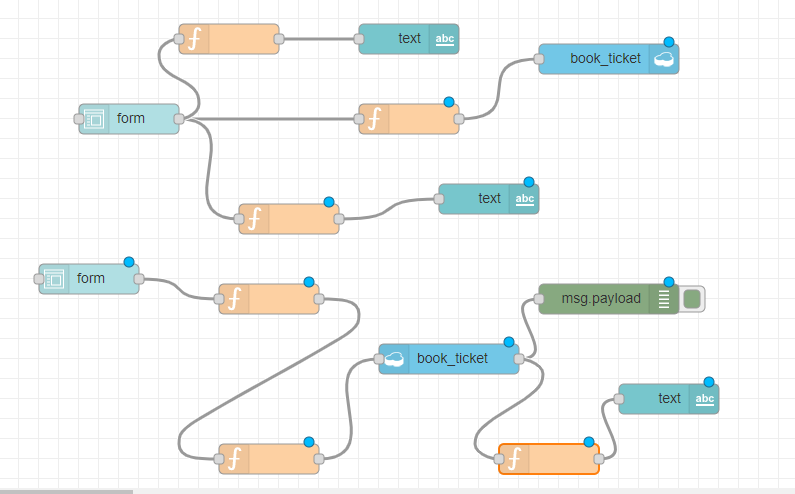
A. using cloudant:

1. 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Ticket booking Successfull\"\nreturn msg;","outputs":1,"noerr":0,"x":180,"y":260,"wires":[["64ed672b.407798"]]},{"id":"64ed672b.407798","type":"ui\_text","z":"d5e71d78.1f5c8","group":"2b077d37.b982f2","order":2,"width":0,"height":0,"name":"","label":"","format":"{{msg.payload}}","layout":"row-spread","x":420,"y":280,"wires":[]},{"id":"22e037be.d090a8","type":"ui\_form","z":"d5e71d78.1f5c8","name":"","label":"","group":"bfb6363a.662978","order":1,"width":0,"height":0,"options":[{"label":"Enter the email id","value":"email","type":"text","required":true,"rows":null},{"label":"Enter password","value":"pwd","type":"text","required":true,"rows":null}],"formValue":{"email":"","pwd":""},"payload":"","submit":"submit","cancel":"cancel","topic":"","x":130,"y":420,"wires":[["cfb6ec9a.2a133"]]},{"id":"cfb6ec9a.2a133","type":"function","z":"d5e71d78.1f5c8","name":"","func":"global.set(\"email\",msg.payload.email);\nglobal.set(\"pwd\",msg.payload.pwd);\nreturn 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}\n \nreturn msg;","outputs":1,"noerr":0,"x":720,"y":500,"wires":[["c99aeba2.aac768"]]},{"id":"c99aeba2.aac768","type":"ui\_text","z":"d5e71d78.1f5c8","group":"bfb6363a.662978","order":2,"width":0,"height":0,"name":"","label":"","format":"{{msg.payload}}","layout":"row-spread","x":730,"y":580,"wires":[]},{"id":"e84c5730.8795d8","type":"function","z":"d5e71d78.1f5c8","name":"","func":"msg.payload= \" Welcome to our new Ticket Booking System.Here you can eaisly book your ticket.\"\nreturn msg;","outputs":1,"noerr":0,"x":250,"y":40,"wires":[["cb05ac7e.a879b"]]},{"id":"cb05ac7e.a879b","type":"ui\_text","z":"d5e71d78.1f5c8","group":"3877a498.c7ddbc","order":2,"width":0,"height":0,"name":"","label":"","format":"{{msg.payload}}","layout":"row-spread","x":430,"y":40,"wires":[]},{"id":"2b077d37.b982f2","type":"ui\_group","z":"","name":"Book 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msg;","outputs":1,"noerr":0,"x":410,"y":160,"wires":[["622505c9.1c6f8c"]]},{"id":"f7877feb.6ed3e","type":"function","z":"d5e71d78.1f5c8","name":"","func":"msg.payload = \"Hey! \"+msg.payload.name+\". Ticket booking Successfull\"\nreturn msg;","outputs":1,"noerr":0,"x":180,"y":260,"wires":[["64ed672b.407798"]]},{"id":"64ed672b.407798","type":"ui\_text","z":"d5e71d78.1f5c8","group":"2b077d37.b982f2","order":2,"width":0,"height":0,"name":"","label":"","format":"{{msg.payload}}","layout":"row-spread","x":420,"y":280,"wires":[]},{"id":"22e037be.d090a8","type":"ui\_form","z":"d5e71d78.1f5c8","name":"","label":"","group":"bfb6363a.662978","order":1,"width":0,"height":0,"options":[{"label":"Enter the email id","value":"email","type":"text","required":true,"rows":null},{"label":"Enter password","value":"pwd","type":"text","required":true,"rows":null}],"formValue":{"email":"","pwd":""},"payload":"","submit":"submit","cancel":"cancel","topic":"","x":130,"y":420,"wires":[["cfb6ec9a.2a133"]]},{"id":"cfb6ec9a.2a133","type":"function","z":"d5e71d78.1f5c8","name":"","func":"global.set(\"email\",msg.payload.email);\nglobal.set(\"pwd\",msg.payload.pwd);\nreturn msg;","outputs":1,"noerr":0,"x":310,"y":360,"wires":[["2860bd1f.3acff2"]]},{"id":"3213dcf2.e6ba34","type":"cloudant in","z":"d5e71d78.1f5c8","name":"","cloudant":"","database":"book\_ticket","service":"node-red-ypwug-cloudant-1593323438277-78596","search":"\_id\_","design":"","index":"","x":510,"y":440,"wires":[["e6946b42.ff41e8","da005e.499eefa"]]},{"id":"2860bd1f.3acff2","type":"function","z":"d5e71d78.1f5c8","name":"","func":"var email = global.get(\"email\")\nmsg.payload = {\n \"\_id\":email\n}\nreturn msg;","outputs":1,"noerr":0,"x":320,"y":500,"wires":[["3213dcf2.e6ba34"]]},{"id":"e6946b42.ff41e8","type":"debug","z":"d5e71d78.1f5c8","name":"","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"false","x":680,"y":360,"wires":[]},{"id":"da005e.499eefa","type":"function","z":"d5e71d78.1f5c8","name":"","func":"var pwd = global.get(\"pwd\");\nif(msg.payload.Password==pwd){\n msg.payload = \"Login Successfull\"\n}\n else{\n msg.payload = \"Invalid Password\"\n }\n \nreturn msg;","outputs":1,"noerr":0,"x":720,"y":500,"wires":[["c99aeba2.aac768"]]},{"id":"c99aeba2.aac768","type":"ui\_text","z":"d5e71d78.1f5c8","group":"bfb6363a.662978","order":2,"width":0,"height":0,"name":"","label":"","format":"{{msg.payload}}","layout":"row-spread","x":730,"y":580,"wires":[]},{"id":"e84c5730.8795d8","type":"function","z":"d5e71d78.1f5c8","name":"","func":"msg.payload= \" Welcome to our new Ticket Booking System.Here you can eaisly book your ticket.\"\nreturn msg;","outputs":1,"noerr":0,"x":250,"y":40,"wires":[["cb05ac7e.a879b"]]},{"id":"cb05ac7e.a879b","type":"ui\_text","z":"d5e71d78.1f5c8","group":"3877a498.c7ddbc","order":2,"width":0,"height":0,"name":"","label":"","format":"{{msg.payload}}","layout":"row-spread","x":430,"y":40,"wires":[]},{"id":"2b077d37.b982f2","type":"ui\_group","z":"","name":"Book Ticket","tab":"4cdc0db3.f49c84","order":2,"disp":true,"width":"6","collapse":false},{"id":"bfb6363a.662978","type":"ui\_group","z":"","name":"login","tab":"df6ac3b7.896ce","order":1,"disp":true,"width":"6","collapse":false},{"id":"3877a498.c7ddbc","type":"ui\_group","z":"","name":"Message","tab":"f5d03ffa.2674b","order":1,"disp":true,"width":"6","collapse":false},{"id":"4cdc0db3.f49c84","type":"ui\_tab","z":"","name":"Ticket Booking","icon":"dashboard","order":3,"disabled":false,"hidden":false},{"id":"df6ac3b7.896ce","type":"ui\_tab","z":"","name":"User Login","icon":"dashboard","order":2,"disabled":false,"hidden":false},{"id":"f5d03ffa.2674b","type":"ui\_tab","z":"","name":"Welcome","icon":"dashboard","order":1,"disabled":false,"hidden":false}]

NODE-RED LINK:

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NODE -RED connection:



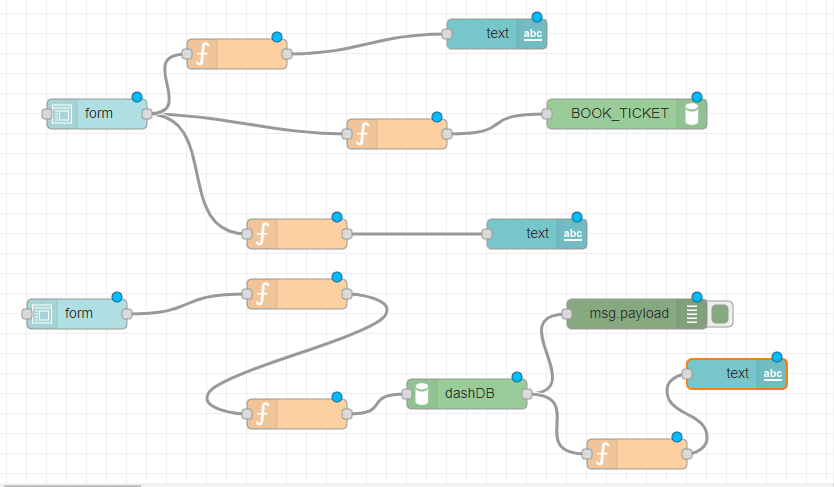
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NODE-RED LINK:

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NODE -RED connection:



OUTPUT:

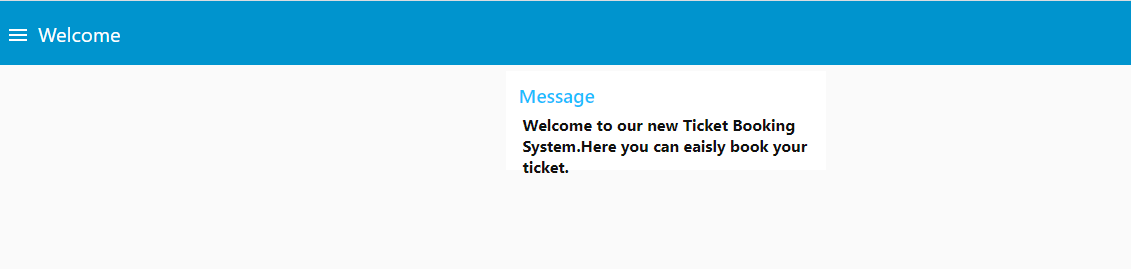
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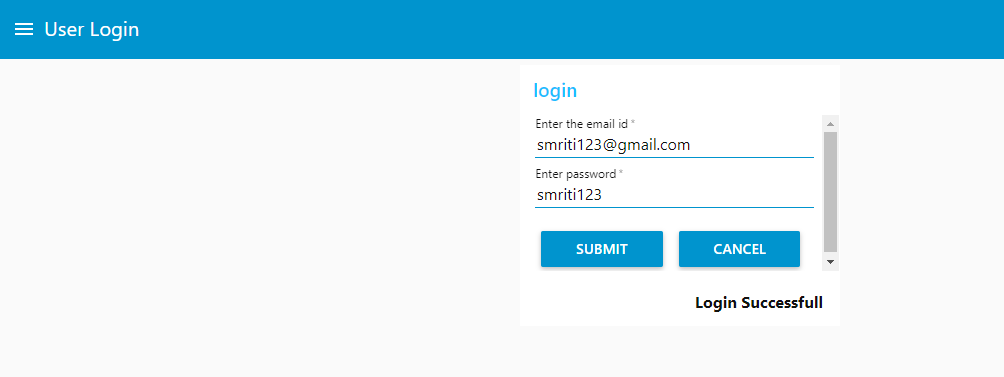
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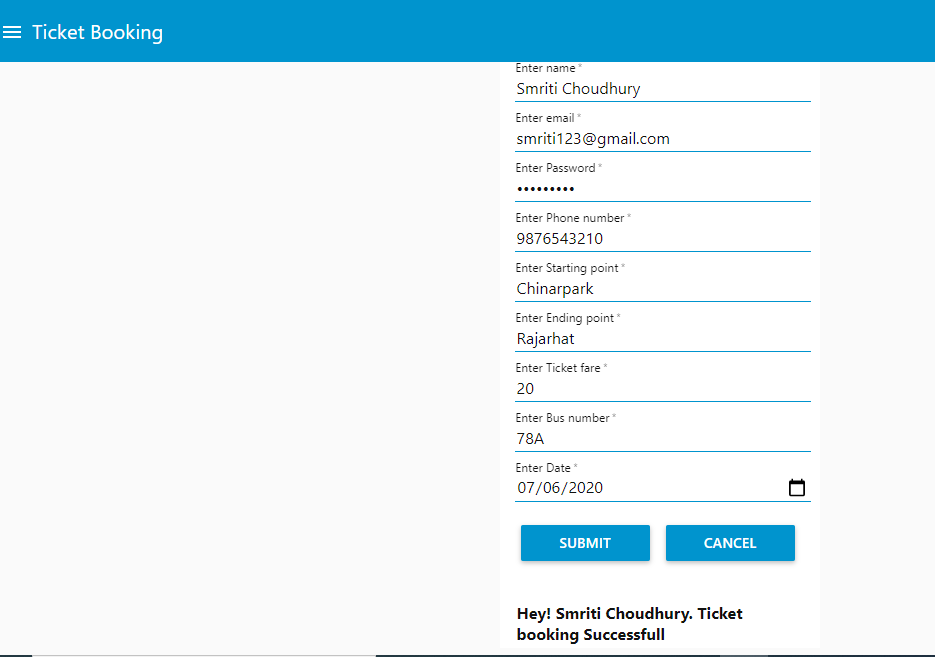
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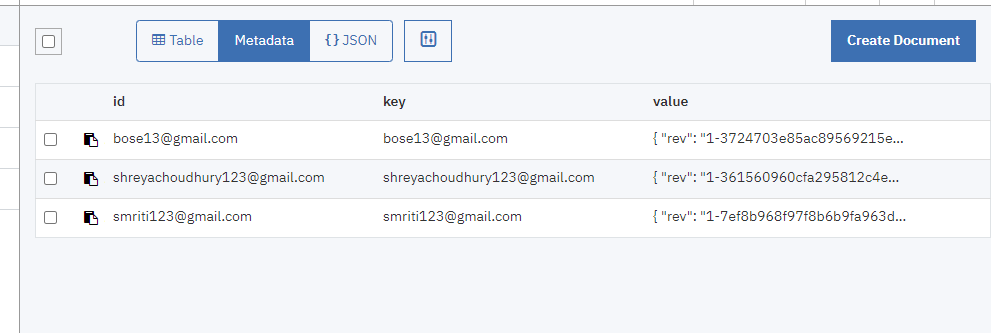
User Login Page:



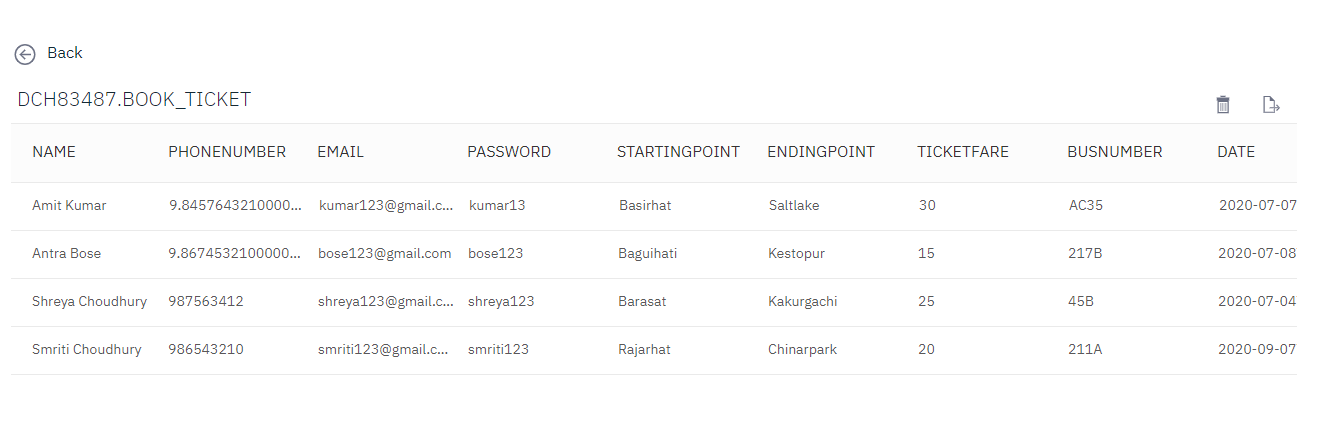
Ticket booking successful page:



Data base connectivity:(cloudant)



Data base connectivity:(DB 2)



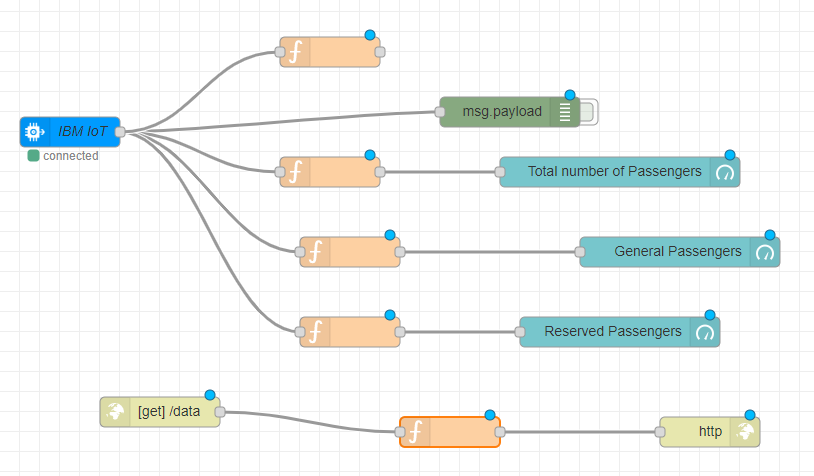
**2. DEVELOPMENT of IOT:**

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NODE-RED LINK:

<https://node-red-ypwug.eu-gb.mybluemix.net/red/#flow/b271277.8cc12d8>

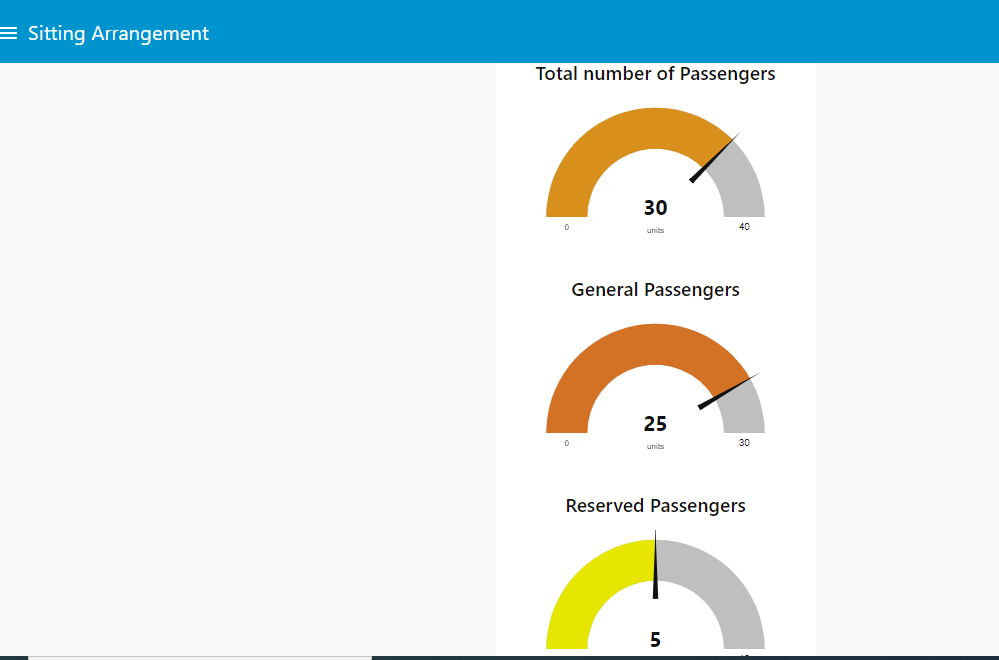
NODE -RED connection:



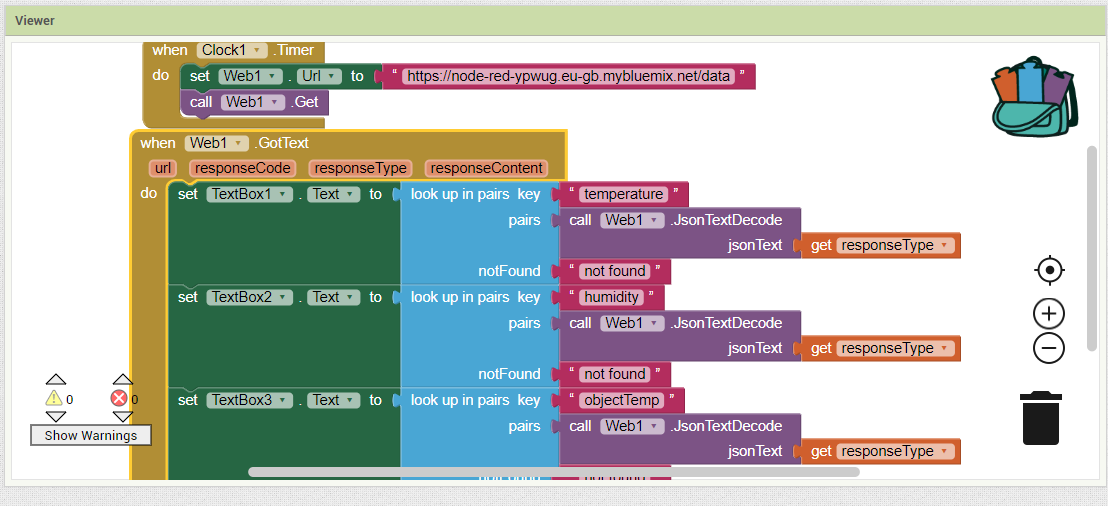
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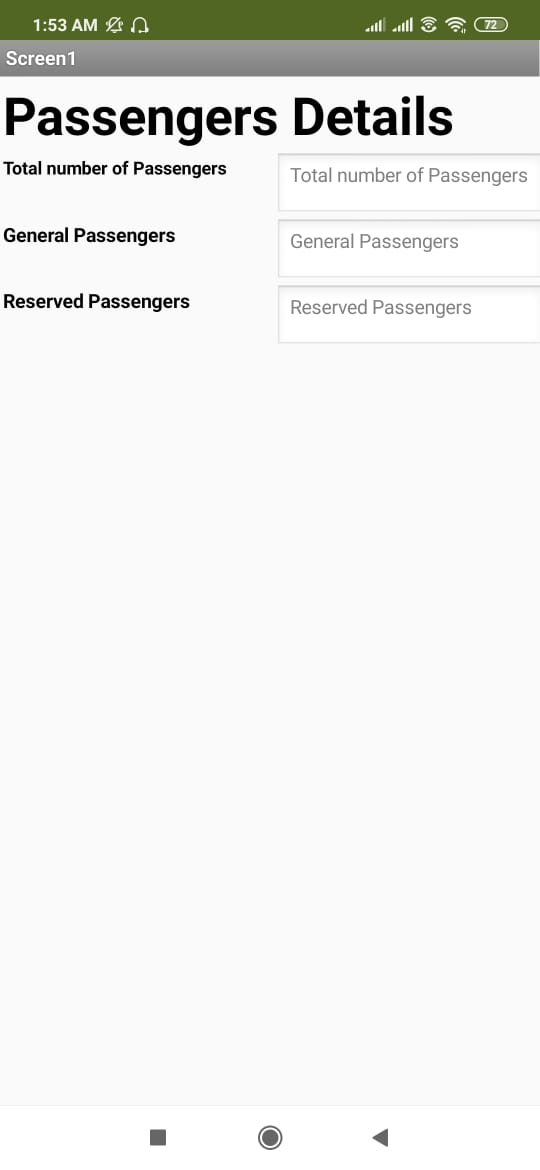
a. Sitting arrangement page:



**3.Mobile app Aplication:**



OUTPUT:

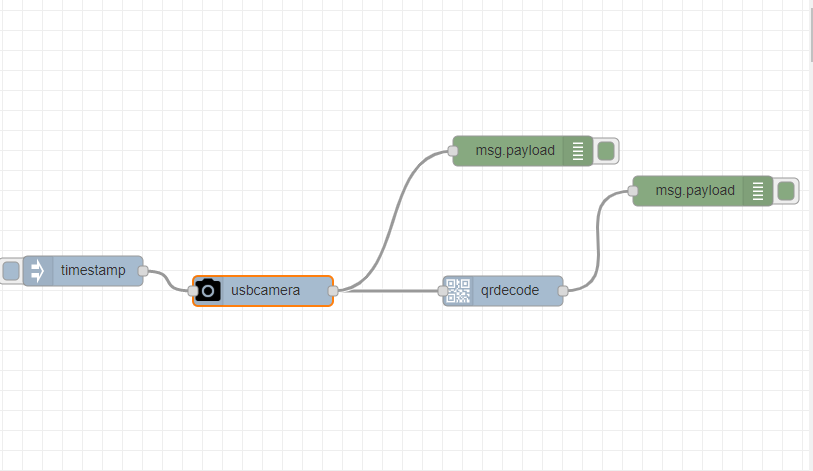


LINK( Mobile application):

<http://ai2.appinventor.mit.edu/#5227262899519488>

**4.QR-code based ticketing/payment:**

NODE -RED connection:



NODE-RED LINK:

<https://node-red-ypwug.eu-gb.mybluemix.net/red/#flow/df22f7d2.ae1e48>

1. [{"id":"940cc959.d4f918","type":"usbcamera","z":"df22f7d2.ae1e48","filemode":"1","filename":"C:\\Users\\smriti\\Desktop\\IBM","filedefpath":"1","filepath":"","fileformat":"png","resolution":"1","name":"","x":300,"y":300,"wires":[["43429197.3c4fb","7e37de42.8b333"]]}]

Generate QR -Code:

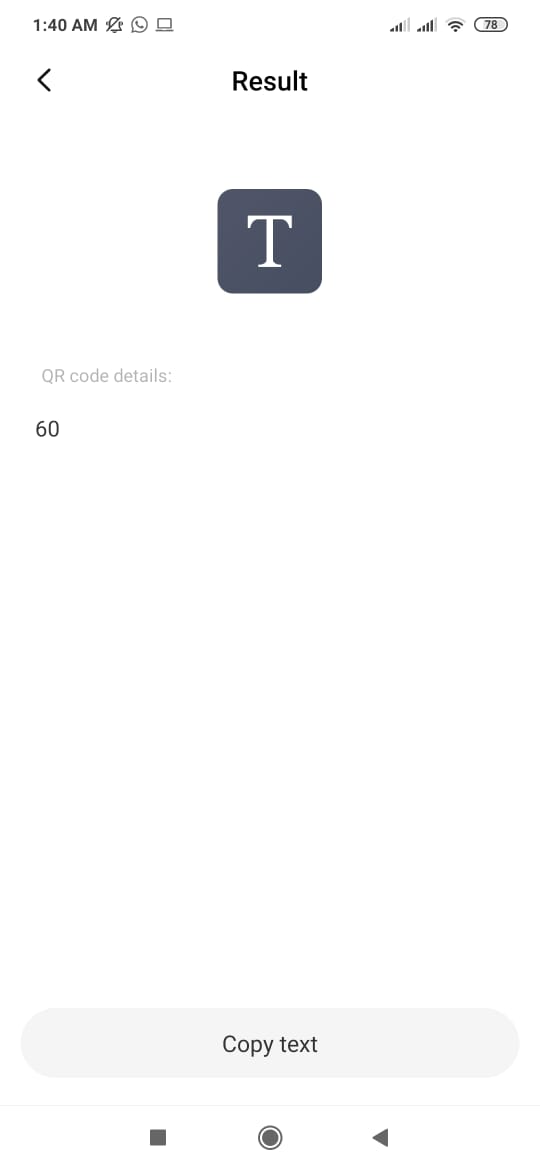
1. import qrcode
2. qr=qrcode.QRCode(
3. version=1,
4. box\_size=10,
5. border=5
6. )
7. data="60"
8. qr.add\_data(data)
9. qr.make(fit=True)
10. img=qr.make\_image(fill="black",back\_color="white")
11. img.save("2.png")

OUTPUT:

QR -Code:



QR-Code DATA:



LINK (QR-Code):

<https://node-red-ypwug.eu-gb.mybluemix.net/ui/>