PART-B

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B1)Create a web page using HTML5 canvas element to show a clock which changes time for every second, minute and hours (as that of an analog clock). Clock should have second, minute and hour needles and minute marking must be there (as shownin screen shot).

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```
<!doctype html>
<html>
<head>
        <title>Analog Clock </title>
</head>
<body>
         <canvas id="canvas" width="400" height="400"></canvas>
</body>

<script>
  function clock()
 {
    const now = new Date();
    const canvas = document.getElementById("canvas");
    const ctx = canvas.getContext("2d");

    ctx.save();
    ctx.clearRect(0, 0, 150, 150);
    ctx.translate(80, 80);
    ctx.scale(0.5, 0.5);

   ctx.rotate(-Math.PI / 2);

 //hour markings

    ctx.strokeStyle = "black";
    ctx.lineWidth = 8;
    ctx.lineCap = "round";
    ctx.save();

   for (let i = 0; i < 12; i++)
   {
      ctx.beginPath();
      ctx.rotate(Math.PI / 6);
      ctx.moveTo(100,0);
      ctx.lineTo(120, 0);
      ctx.stroke();
  }
     ctx.restore();
     ctx.save();
```

```
//minutes markings

    ctx.lineWidth = 5;
    for (let i = 0; i < 60; i++)
    {
      if (i % 5 !== 0)
      {
        ctx.beginPath();
        ctx.moveTo(117, 0);
        ctx.lineTo(120, 0);
        ctx.stroke();
      }
    ctx.rotate(Math.PI / 30);
  }

  ctx.restore();
  const sec = now.getSeconds();
  const min = now.getMinutes();
  const hr = now.getHours() % 12;

  // Write Hour hand
  ctx.save();
  ctx.rotate( (Math.PI / 6) * hr + (Math.PI / 360) * min + (Math.PI / 21600) * sec);
  ctx.lineWidth = 14;
  ctx.beginPath();
  ctx.moveTo(-20, 0);
  ctx.lineTo(80, 0);
 ctx.stroke();
  ctx.restore();

 // Write Minute hand
  ctx.save();
  ctx.rotate((Math.PI / 30) * min + (Math.PI / 1800) * sec);
  ctx.lineWidth = 10;
  ctx.beginPath();
  ctx.moveTo(-28, 0);
  ctx.lineTo(112, 0);
  ctx.stroke();
  ctx.restore();

 // Write seconds

  ctx.save();
  ctx.rotate((sec * Math.PI) / 30);
  ctx.strokeStyle = "red";
  ctx.lineWidth = 6;
  ctx.beginPath();
  ctx.moveTo(-30, 0);
  ctx.lineTo(83, 0);
  ctx.stroke();

//middle red circle

  ctx.beginPath();
  ctx.arc(0, 0, 10, 0, Math.PI * 2, true);
```

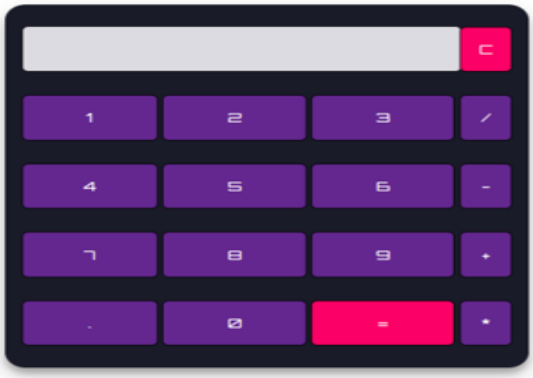
```
  ctx.fillStyle = "red";
  ctx.fill();

//tip of second hand needle
  ctx.beginPath();
  ctx.arc(95, 0, 10, 0, Math.PI * 2, true);
  ctx.stroke();
  ctx.restore();

//outer circle
  ctx.beginPath();
  ctx.lineWidth = 14;
  ctx.strokeStyle = "#325FA2";
  ctx.arc(0, 0, 142, 0, Math.PI * 2, true);
  ctx.stroke();

  ctx.restore();

  window.requestAnimationFrame(clock);
}

window.requestAnimationFrame(clock);

</script>
</html>
```

****

B2)Create a web page containing simple calculator which should have basic arithmetic(+,-,*,/) operation on two floating point numbers and show result.

Validations to be followed:

- . (Decimal point) should be taken only once for an operand.
- Operand can be negative.
- Division by zero must be shown proper error message in result.Sample screen shot:



****

```
<!DOCTYPE html>
<html>
<head>
<title> JavaScript Calculator </title>

<style>

#clear{
	width: 50px;
	background-color: red;
}

#equal
{
	background-color: red;
}
.formstyle
{
	width: 275px;
	height:autofit;
	margin: auto;
	border-radius:10px;
	padding: 10px 10px;
	background-color: black;
}


input
{
	width: 15px;
	background-color: purple;
	color: white;
	border-radius: 10px;
	padding: 25px;
```

```
        margin: 5px;
        font-size: 15px;
}

#calc{
        width: 140px;
        background-color: gray;
}

</style>
<script>
        function check()
        {
                if(!form1.answer.value.includes('.'))
                {
                form1.answer.value += '.'
                }
                else
                {
                alert("Decimal point should not repeat");

                }
        }
</script>
</head>
<body>
<div class= "formstyle">
<form name = "form1">

 <input id = "calc" type ="text" name = "answer">
 <input type = "button" value = "C" onclick = "form1.answer.value = ' ' " id= "clear" >
  <br>

  <input type = "button" value = "1" onclick = "form1.answer.value += '1' ">
  <input type = "button" value = "2" onclick = "form1.answer.value += '2' ">
  <input type = "button" value = "3" onclick = "form1.answer.value += '3' ">
  <input type = "button" value = "/" onclick = "form1.answer.value += '/' ">

  <br>

  <input type = "button" value = "4" onclick = "form1.answer.value += '4' ">
  <input type = "button" value = "5" onclick = "form1.answer.value += '5' ">
  <input type = "button" value = "6" onclick = "form1.answer.value += '6' ">
  <input type = "button" value = "-" onclick = "form1.answer.value += '-' ">
  <br>

  <input type = "button" value = "7" onclick = "form1.answer.value += '7' ">
  <input type = "button" value = "8" onclick = "form1.answer.value += '8' ">
  <input type = "button" value = "9" onclick = "form1.answer.value += '9' ">
   <input type = "button" value = "+" onclick = "form1.answer.value += '+' ">

  <br>

    <input type = "button" value = "." onclick = "check()">
    <input type = "button" value = "0" onclick = "form1.answer.value += '0' ">
```

```
<input type = "button" value = "="  id="equal" onclick = "form1.answer.value = eval(form1.answer.value) ">
 <input type = "button"  value = "*" onclick = "form1.answer.value += '*' ">
 <br>

 </form>
 </div>
 </body>
 </html>
```

Output