Scripting Lab Assignment

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Section –A

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Semester –5

Create a calculator app using Angular which is capable of performing following operations:

1. Addition of two numbers
2. Subtraction of two numbers
3. Multiplication of two numbers
4. Division of two numbers
5. Factorial of a number
6. Checking if a given number is Prime or not

We have the root component app-root, its child component calculator, and calculator's child component calculator-keys.

Index.html

```
<!doctype html>
<html lang="en">
<head>
  <meta charset="utf-8">
  <title>CalcApp</title>
  <base href="/">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link rel="icon" type="image/x-icon" href="favicon.ico">
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.1/dist/css/bootstrap.
min.css" rel="stylesheet" integrity="sha384-
F3w7mX95PdgyTmZZMECAngseQB83DfGTowi0iMjiWaeVhAn4FJkqJByhZMI3AhiU" crossorigin=
"anonymous">
</head>
<body>
  <center><h1>Calculator app</h1></center>
  <app-root></app-root>
  <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.1.1/dist/js/bootstrap.
bundle.min.js" integrity="sha384-
/bQdsTh/da6pkI1MST/rWKFNjaCP5gBSY4sEBT38Q/9RBh9AH40zEOg7Hlq2THRZ" crossorigin=
"anonymous"></script>
</body>
</html>
```

App Component

app-component.html

```
<app-calculator></app-calculator>
```

app-component.ts

```
import { Component } from '@angular/core';

@Component({
  selector: 'app-root',
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.css']
})
export class AppComponent {
  title = 'calc-app';
}
```

app.module.ts

```
import { NgModule } from '@angular/core';
import { BrowserModule } from '@angular/platform-browser';

import { AppComponent } from './app.component';
import { CalculatorComponent } from './calculator/calculator.component';
import { CalculatorKeysComponent } from './calculator-keys/calculator-
keys.component';

@NgModule({
  declarations: [
    AppComponent,
    CalculatorComponent,
    CalculatorKeysComponent
  ],
  imports: [
    BrowserModule
  ],
  providers: [],
  bootstrap: [AppComponent]
})
export class AppModule { }
```

Calculator Component

calculator.component.html

```
<div class="calculator">
  <app-calculator-keys></app-calculator-keys>
</div>
```

calculator.component.spec.ts

```
import { ComponentFixture, TestBed } from '@angular/core/testing';

import { CalculatorComponent } from './calculator.component';

describe('CalculatorComponent', () => {
  let component: CalculatorComponent;
  let fixture: ComponentFixture<CalculatorComponent>;

  beforeEach(async () => {
    await TestBed.configureTestingModule({
      declarations: [ CalculatorComponent ]
    })
    .compileComponents();
  });

  beforeEach(() => {
    fixture = TestBed.createComponent(CalculatorComponent);
    component = fixture.componentInstance;
    fixture.detectChanges();
  });

  it('should create', () => {
    expect(component).toBeTruthy();
  });
});
```

Calculator.component.ts

```
import { Component, OnInit } from '@angular/core';

@Component({
  selector: 'app-calculator',
  templateUrl: './calculator.component.html',
  styleUrls: ['./calculator.component.css']
})
export class CalculatorComponent {

}
```

calculator.component.css

```
.calculator {
  border: 1px solid #ccc;
  border-radius: 5px;
  position:relative;
  top: 50%;
  left:33%;
  width: 400px;
}
```

Calculator-Keys Component

calculator-keys.component.html

```
<input type="text" class="calculator-screen" [value]="currentNumber" disabled>
<div class="calculator-keys">
  <button type="button" (click) = "getfacto()" class="operator" >!</button>
  <button type="button" (click) = "getPrime()" class="operator" >Prime</button
>
  <button type="button" (click) = "getOperation('+')" class="operator" value="
+">+</button>
  <button type="button" (click) = "getOperation('-
')" class="operator" value="-">-</button>
  <button type="button" (click) = "getOperation('*')" class="operator" value="
*">x</button>
  <button type="button" (click) = "getOperation('/')" class="operator" value="
/">/</button>

  <button type="button" (click) = "getNumber('7')" value="7">7</button>
  <button type="button" (click) = "getNumber('8')" value="8">8</button>
  <button type="button" (click) = "getNumber('9')" value="9">9</button>


  <button type="button" (click) = "getNumber('4')" value="4">4</button>
  <button type="button" (click) = "getNumber('5')" value="5">5</button>
  <button type="button" (click) = "getNumber('6')" value="6">6</button>


  <button type="button" (click) = "getNumber('1')" value="1">1</button>
  <button type="button" (click) = "getNumber('2')" value="2">2</button>
  <button type="button" (click) = "getNumber('3')" value="3">3</button>
  <button type="button" (click) = "getNumber('0')" value="0">0</button>
  <button type="button" (click) = "getDecimal()" class="decimal" value=".">.</
button>
  <button type="button" (click) = "clear()" class="all-clear" value="all-
clear">AC</button>

  <button type="button" (click) = "getOperation('=')" class="equal-
sign" value="=">=</button>
</div>
```

calculator-keys.component.css

```
.calculator-screen {
  width: 100%;
  font-size: 5rem;
  height: 100px;
  border: none;
  background-color: #252525;
  color: #fff;
  text-align: right;
  padding-right: 20px;
  padding-left: 10px;
}

button {
  height: 48px;
  background-color: #fff;
  border-radius: 3px;
  border: 1px solid #c4c4c4;
  background-color: transparent;
  font-size: 2rem;
  color: #333;
  background-image: linear-
gradient(to bottom,transparent,transparent 50%,rgba(0,0,0,.04));
  box-
shadow: inset 0 0 0 1px rgba(255,255,255,.05), inset 0 1px 0 0 rgba(255,255,25
5,.45), inset 0 -
1px 0 0 rgba(255,255,255,.15), 0 1px 0 0 rgba(255,255,255,.15);
  text-shadow: 0 1px rgba(255,255,255,.4);
}

button:hover {
  background-color: #eaeaea;
}

.operator {
  color: #337cac;
}

.all-clear {
  background-color: #f0595f;
  border-color: #b0353a;
  color: #fff;
}

.all-clear:hover {
  background-color: #f17377;
}

.equal-sign {
  background-color: #2e86c0;
  border-color: #337cac;
  color: #fff;
  height: 100%;
  grid-area: 2 / 4 / 6 / 5;
}

.equal-sign:hover {
  background-color: #4e9ed4;
}

.calculator-keys {
  display: grid;
  grid-template-columns: repeat(4, 1fr);
  grid-gap: 20px;
  padding: 20px;
}
```

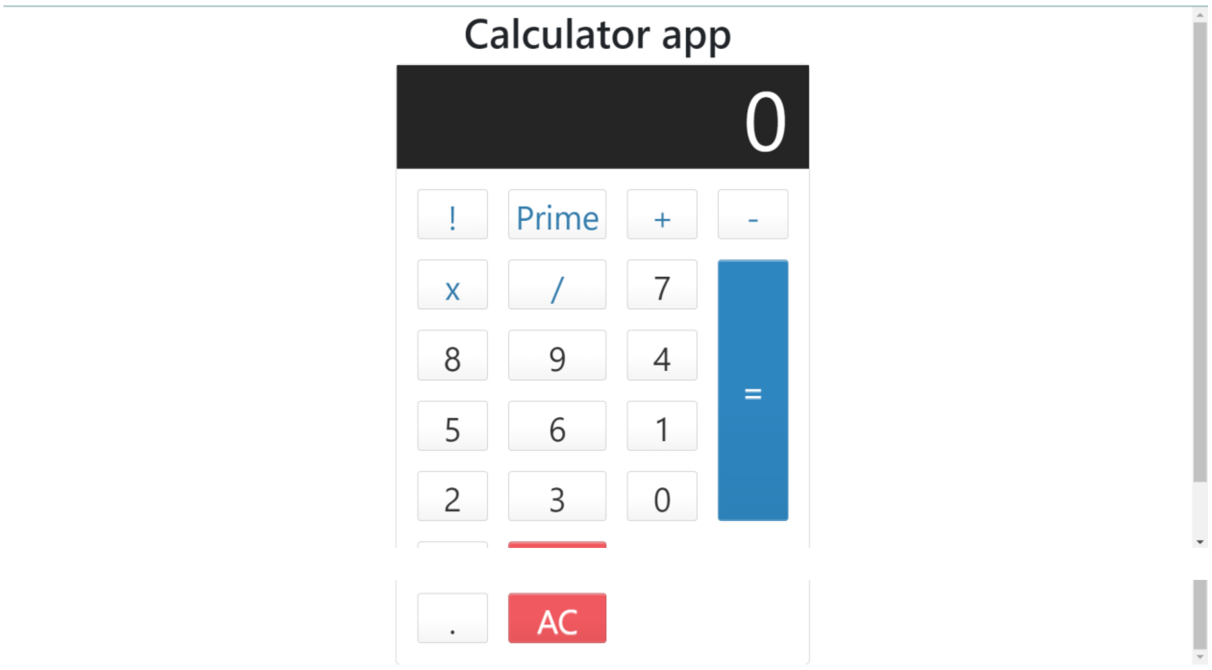
calculator-keys.component.specs.ts

```
import { ComponentFixture, TestBed } from '@angular/core/testing';

import { CalculatorKeysComponent } from './calculator-keys.component';

describe('CalculatorKeysComponent', () => {
  let component: CalculatorKeysComponent;
  let fixture: ComponentFixture<CalculatorKeysComponent>;

  beforeEach(async () => {
    await TestBed.configureTestingModule({
      declarations: [ CalculatorKeysComponent ]
    })
    .compileComponents();
  });

  beforeEach(() => {
    fixture = TestBed.createComponent(CalculatorKeysComponent);
    component = fixture.componentInstance;
    fixture.detectChanges();
  });

  it('should create', () => {
    expect(component).toBeTruthy();
  });
});
```

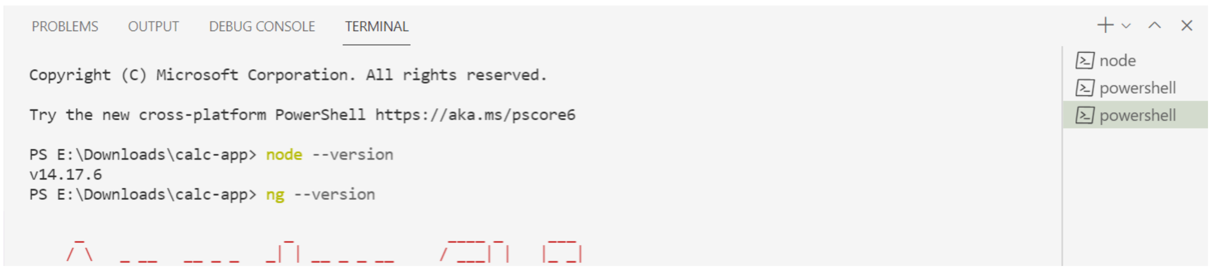
Calculator-keys.component.ts

```
import { Component, OnInit } from '@angular/core';

@Component({
  selector: 'app-calculator-keys',
  templateUrl: './calculator-keys.component.html',
  styleUrls: ['./calculator-keys.component.css']
})
export class CalculatorKeysComponent{
  currentNumber = '0';
  firstOperand= 0;
  operator = "";
  waitForSecondNumber = false;
  public getNumber(v: string){
    console.log(v);
    if(this.waitForSecondNumber)
    {
      this.currentNumber = v;
      this.waitForSecondNumber = false;
    }else{
      this.currentNumber === '0'? this.currentNumber = v: this.currentNumber +
= v;

    }
  }
  getDecimal(){
    if(!this.currentNumber.includes('.')){
        this.currentNumber += '.';
    }
  }
  getPrime(){
    const num = Number(this.currentNumber);
    let flag = 0;
    if(num < 2){
        this.currentNumber = "Neither Prime nor Composite"
    }
    for (let k = 2; k < num; k++){
      if( num % k == 0){
        flag =1;
      }
    }
    if(flag==0){
      this.currentNumber = "Prime"
    }
    else{
      this.currentNumber = "Composite"
    }
  }
  getfacto(){
    const num= Number(this.currentNumber);
    let answer = 1;
    if (num == 0 || num == 1){
      this.currentNumber= "1";
    }
    else{
      for(var i = num; i >= 1; i--){
        answer = answer * i;
      }
      this.currentNumber = String(answer);
    }
  }
  private doCalculation(op:string , secondOp:number){
    switch (op){
      case '+':
      return this.firstOperand += secondOp;
      case '-':
      return this.firstOperand -= secondOp;
      case '*':
      return this.firstOperand *= secondOp;
      case '/':
      return this.firstOperand /= secondOp;
      case '=':
      return secondOp;
    }
    return secondOp;
  }
  public getOperation(op: string){
    console.log(op);
    if(this.firstOperand === null){
      this.firstOperand = Number(this.currentNumber);

    }else if(this.operator){
      const result  = this.doCalculation(this.operator , Number(this.currentNu
mber)) as number
      this.currentNumber = String(result);
      this.firstOperand = result;
    }
    this.operator = op;
    this.waitForSecondNumber = true;

    console.log(this.firstOperand);

  }
  public clear(){
    this.currentNumber = '0';
    this.firstOperand = 0;
    this.operator = "";
    this.waitForSecondNumber = false;
  }
}
```

Screenshot of App



Screenshot of all installations taken in vs code



```
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS E:\Downloads\calc-app> node --version
v14.17.6
PS E:\Downloads\calc-app> ng --version

     _                      _                 ____ _     ___
```

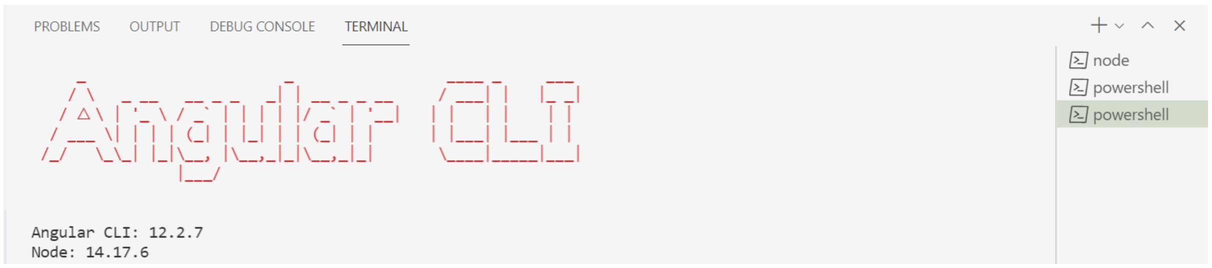

```
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   / △ \ | '_ \ / _` | | | | |/ _` | '__|   | |   | |    | |
  / ___ \| | | | (_| | |_| | | (_| | |      | |___| |___ | |
 /_/   \_\_| |_|\__, |\__,_|_|\__,_|_|       \____|_____|___|
                |___/


Angular CLI: 12.2.7
Node: 14.17.6
```
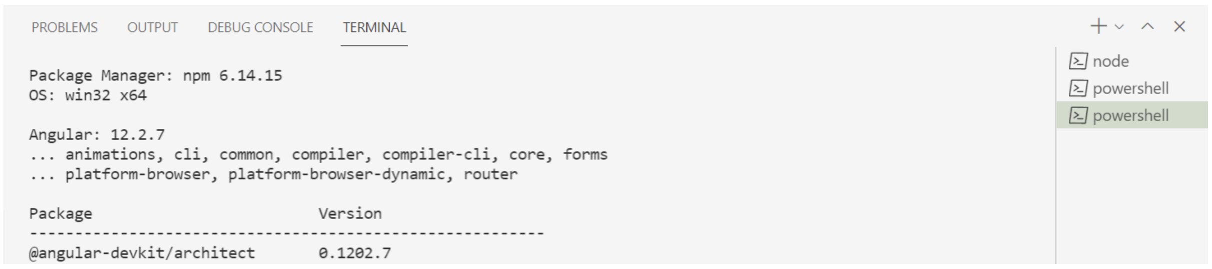
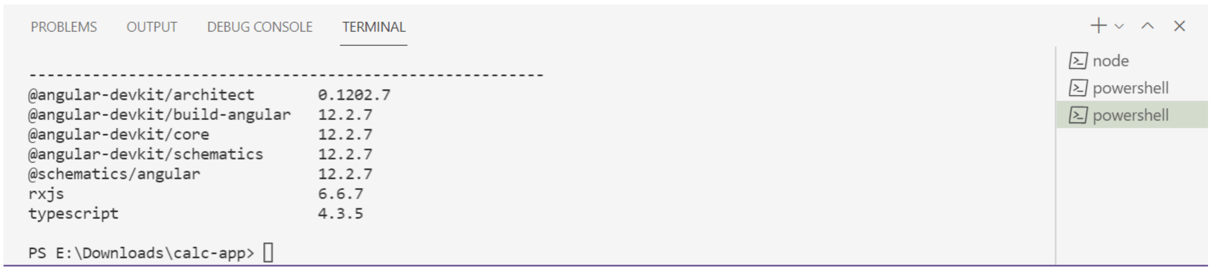



```
Package Manager: npm 6.14.15
OS: win32 x64

Angular: 12.2.7
... animations, cli, common, compiler, compiler-cli, core, forms
... platform-browser, platform-browser-dynamic, router

Package                         Version
---------------------------------------------------------
@angular-devkit/architect       0.1202.7
```



```
---------------------------------------------------------
@angular-devkit/architect       0.1202.7
@angular-devkit/build-angular   12.2.7
@angular-devkit/core            12.2.7
@angular-devkit/schematics      12.2.7
@schematics/angular             12.2.7
rxjs                            6.6.7
typescript                      4.3.5

PS E:\Downloads\calc-app> 
```