21-모듈사용하기 연습문제 홍승택

문제 1,2,3

```html
<!DOCTYPE html>
<html lang="ko">
    <head>
        <meta charset="UTF-8">
        <meta http-equiv="X-UA-Compatible" content="IE=edge">
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
        <title>Document</title>
        <style>
            .subplot{
                float: left;
                width: 33.3%;
                padding: 50px;
                box-sizing: border-box;
            }

            .subplot-item {
                width: auto;
                height: 320px;
            }
        </style>

    </head>
    <body>
        <h1>Chart.js</h1>
        <p>
            <a href="https://www.chart.js.org/">https://www.chartjs.org</a>
        </p>
        <hr />

        <div class="subplot">
            <h2>학과 별 인원 수 그래프</h2>
            <div class="subplot-item">
                <canvas id="mychart1"></canvas>
            </div>
        </div>

        <div class="subplot">
            <h2>학년에 따른 평균 나이 변화</h2>
            <div class="subplot-item">
                <canvas id="mychart2"></canvas>
            </div>
        </div>

        <div class="subplot">
            <h2>학년별 평균키와 평균 몸무게</h2>
            <div class="subplot-item">
```

```html
                <canvas id="mychart3"></canvas>
            </div>
        </div>
        <script type="text/javascript"
src="../node_modules/chart.js/dist/chart.min.js"></script>
        <script src="./dataset.js"></script>

        <!-- 2번,3번에서 평균 구하는 함수-->
        <script>
            function getAvg(data){
                let sum = 0;
                data.forEach((e,i) => {
                    sum +=e;
                });
                return sum/data.length;
            }
        </script>

        <script>
            //1번 데이터 추출
            const deptList = {};

            student.forEach((e,i) => {
                const dname = e.deptno;
                if (deptList[dname] === undefined) deptList[dname] = 0;
                deptList[dname]++;
            });

            const department = [];
            const studentCount = [];

            for(const key in deptList){
                department.push(key);
                studentCount.push(deptList[key]);
            }

            console.log(deptList);
            //2번 데이터 추출
            const nwYear= new Date().getFullYear();
            const ageInfo = {};

            student.forEach((e,i) => {
                const key = e.grade + "학년";
                const birth = +e['birthdate'].substring(0,4);
                const age =nwYear-birth+1

                if(ageInfo[key] === undefined) ageInfo[key] = [];
                ageInfo[key].push(age);
            });
            console.log(ageInfo);

            const agearr = [];
            const level = [];
```

```javascript
        for (let key in ageInfo){
            level.push(key);
            agearr.push(getAvg(ageInfo[key]));
        }
        console.log(agearr,level);

        level.forEach((e,i) => {
            for(let j = i+1; j < level.length; j++){
                const x = parseInt(level[i]);
                const y = parseInt(level[j]);

                if(x>y) {
                    let tmp = level[i];
                    level[i] = level[j];
                    level[j] = tmp;

                    tmp = agearr[i];
                    agearr[i] = agearr[j];
                    agearr[j] = tmp;
                }
            }
        })
        console.log(agearr,level);


        // 3번 데이터 추출
        // 2반에서 사용한 agearr 그대로 사용.

        const bodyInfo = {};
        level.forEach( (e,i) => {
            bodyInfo[e] = {"height": [], "weight": []};

        });
        console.log(bodyInfo);
        student.forEach((e,i) => {
            bodyInfo[e['grade']+"학년"].height.push(e['height']);
            bodyInfo[e['grade']+"학년"].weight.push(e['weight']);
        });

        console.log(bodyInfo);

        heightAvg = [];
        weightAvg = [];

        for(const e in bodyInfo){

            heightAvg.push(getAvg(bodyInfo[e]['height']));
            weightAvg.push(getAvg(bodyInfo[e]['weight']));
        }


        // 캔버스 그리기
        // 그래프가 표시될 캔버스 영역
```

```
        let mychart = [];
        for(let i = 1; i<=3; i++){
            let a = "mychart" + i;
            mychart[i-1] = document.getElementById(a);
        }

        //1
        new Chart(mychart1, {
            type: 'bar',
            data: {

                labels: department,

                datasets: [
                {
                    label:'학생 수',
                    data: studentCount,
                    borderWidth: 0.5,

                    borderColor: ['rgba(255,99,132,1)'],
                    backgroundColor: ['rgba(255,99,132,0.2)'],
                },
                ],

            },

            options: {
                maintainAspectRatio: false,
                indexAxis: 'x',
            },

        });
        //2
    /** 선 그래프 그리기 */
    new Chart(mychart2, {

            type: 'line',

            //  data area
            data: {
                // x axis
                labels: level,
                // data struct
                datasets: [
                    // data1
                    {
                        label: '평균나이', // data name
                        data: agearr, // data array
                        borderWidth: 1,
                        borderColor: 'ff6600',
                    },

                ],
```

```
        },
        options: {
            maintainAspectRatio: false,
        }
    });

    //3
    new Chart(mychart3, {
        type: 'bar',
        data: {

            labels: level,

            datasets: [
            {
                label:'키',
                data: heightAvg,
                borderWidth: 0.5,

                borderColor: ['rgba(25,99,132,1)'],
                backgroundColor: ['rgba(25,99,132,0.2)'],
            },
            {
                label:'몸무게',
                data:  weightAvg,
                borderWidth: 0.5,

                borderColor: ['rgba(155,29,222,1)'],
                backgroundColor: ['rgba(155,29,222,0.2)'],
            },
            ],

        },

        options: {
            maintainAspectRatio: false,
            indexAxis: 'x',
        },

    });

</script>
<body>
<html>
```
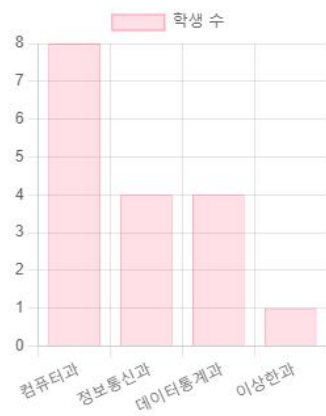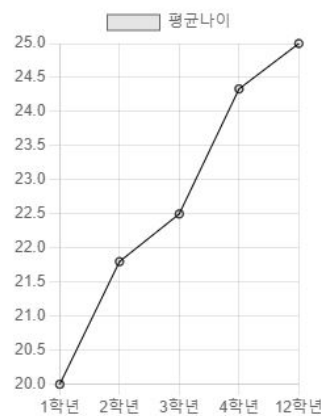
Chart.js

https://www.chartjs.org

학과 별 인원 수 그래프

학년에 따른 평균 나이 변화

학년별 평균키와 평균 몸무게

변수 추가 시

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