장윤신 - 라이브러리 활용 chart.js 연습문제

> 2022-09-15

문제 1

```
<!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>
    <div class="subplot">
      <h2>기본 막대 그래프</h2>
      <div class="subplot-item"><canvas id="mychart1"></canvas></div>
    </div>
    <div class="subplot">
      <h2>기본 선 그래프</h2>
      <div class="subplot-item"><canvas id="mychart2"></canvas></div>
    </div>
    <div class="subplot">
      <h2>다중 막대 그래프</h2>
      <div class="subplot-item"><canvas id="mychart3"></canvas></div>
    </div>

    <script type="text/javascript" src="./dataset/dataset.js"></script>
    <script type="text/javascript"
src="../../node_modules/chart.js/dist/chart.min.js"></script>
    <script>
      const id = [];
      const name = [];
      const grade = [];
```

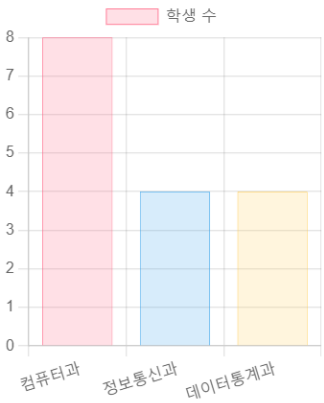
```
        const birthdate = [];
        const height = [];
        const weight = [];
        const deptno = [];

        for (k in student) {
          id.push(student[k]["id"]);
          name.push(student[k]["name"]);
          grade.push(student[k]["grade"]);
          birthdate.push(student[k]["birthdate"]);
          height.push(student[k]["height"]);
          weight.push(student[k]["weight"]);
          deptno.push(student[k]["deptno"]);
        }

        /** 문제1 - 세로 막대 그래프 (학과별 학생 수) */
        console.group("문제1");
        let major = {};
        for (i = 0; i < deptno.length; i++) {
          major[deptno[i]] ? major[deptno[i]]++ : (major[deptno[i]] = 1);
        }
        let m1 = [];
        let m2 = [];
        for (key in major) {
          m1.push(key);
          m2.push(major[key]);
        }

        const mychart1 = document.getElementById("mychart1");
        const mychart2 = document.getElementById("mychart2");
        const mychart3 = document.getElementById("mychart3");

        new Chart(mychart1, {
          type: "bar",
          data: {
            labels: m1,
            datasets: [
              {
                label: "학생 수",
                data: m2,
                borderWidth: 0.5,
                backgroundColor: ["rgba(255, 99, 132, 0.2)", "rgba(54, 162, 235,
0.2)", "rgba(255, 206, 86, 0.2)"],
                borderColor: ["rgba(255, 99, 132, 1)", "rgba(54, 162, 235, 1)",
"rgba(255, 206, 86, 1)"],
              },
            ],
          },
          options: {
            maintainAspectRatio: false,
            scales: {
              y: {
                beginAtZero: true,
              },
```

```
    },
  },
});
console.groupEnd();

/** 문제2 - 선그래프 (학년별 평균 나이) */
console.group("문제2");
console.log(birthdate);
let year = [];
for (yy in birthdate) {
  year.push(2022 - +birthdate[yy].split("-")[0] + 1);
  console.log(birthdate[yy]);
}

console.log(grade);
console.log(year);
const ageInfo = {
  "4학년": [],
  "3학년": [],
  "2학년": [],
  "1학년": [],
};
for (i = 0; i < year.length; i++) {
  if (grade[i] == 4) {
    ageInfo["4학년"].push(year[i]);
  } else if (grade[i] == 3) {
    ageInfo["3학년"].push(year[i]);
  } else if (grade[i] == 2) {
    ageInfo["2학년"].push(year[i]);
  } else if (grade[i] == 1) {
    ageInfo["1학년"].push(year[i]);
  }
}

// 평균 나이 (가로축)
const avg = [];
// 학년 (x축)
const ggg = [];

console.log(ageInfo);
for (key in ageInfo) {
  console.log(ageInfo[key]);
  ggg.push(key);
  let sum = ageInfo[key].reduce((a, c) => {
    return (a = a + c);
  });
  console.log(sum);
  avg.push(sum / ageInfo[key].length);
}
console.log(avg);
console.log(ggg);

new Chart(mychart2, {
  type: "line",
```

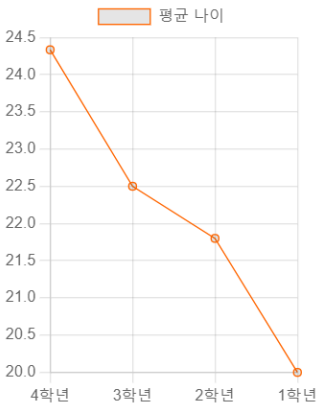
```
    data: {
      labels: ggg,
      datasets: [
        {
          label: "평균 나이",
          data: avg,
          borderWidth: 1,
          borderColor: "#ff6600",
        },
      ],
    },
    options: {
      maintainAspectRatio: false,
    },
  });
  console.groupEnd();

  /** 문제3 - 세로 다중 막대 그래프 (학년별 평균키,평균몸무게) */
  console.group("문제 3");
  console.log(grade);
  console.log(height);
  console.log(weight);

  const g4 = { height: [1] };
  console.log(g4.height);
  const bodyInfo = {
    "4학년": { height: [], weight: [] },
    "3학년": { height: [], weight: [] },
    "2학년": { height: [], weight: [] },
    "1학년": { height: [], weight: [] },
  };
  for (i = 0; i < year.length; i++) {
    if (grade[i] == 4) {
      bodyInfo["4학년"].height.push(height[i]);
      bodyInfo["4학년"].weight.push(weight[i]);
    } else if (grade[i] == 3) {
      bodyInfo["3학년"].height.push(height[i]);
      bodyInfo["3학년"].weight.push(weight[i]);
    } else if (grade[i] == 2) {
      bodyInfo["2학년"].height.push(height[i]);
      bodyInfo["2학년"].weight.push(weight[i]);
    } else if (grade[i] == 1) {
      bodyInfo["1학년"].height.push(height[i]);
      bodyInfo["1학년"].weight.push(weight[i]);
    }
  }

  console.log(bodyInfo);

  // 학년별 평균 키와 평균 몸무게
  let hSum = 0;
  let wSum = 0;
  let hAvg = [];
  let wAvg = [];
```

```
        for (key in bodyInfo) {
          hSum = bodyInfo[key].height.reduce((a, c) => {
            return (a = a + c);
          });
          wSum = bodyInfo[key].weight.reduce((a, c) => {
            return (a = a + c);
          });

          hAvg.push(hSum / bodyInfo[key].height.length);
          wAvg.push(wSum / bodyInfo[key].weight.length);
        }
        console.log("평균키" + hAvg);
        console.log("평균몸무게" + wAvg);

        new Chart(mychart3, {
          type: "bar",
          data: {
            labels: ggg,
            datasets: [
              {
                label: "평균키",
                data: hAvg,
                borderWidth: 0.5,
                borderColor: "rgba(54,162,235,1)",
                backgroundColor: "rgba(54,162,235,0.2)",
              },
              {
                label: "평균몸무게",
                data: wAvg,
                borderWidth: 0.5,
                borderColor: "rgba(255,99,132,1)",
                backgroundColor: "rgba(255,99,132,0.2)",
              },
            ],
          },
          options: {
            maintainAspectRatio: false,
            scales: {
              y: {
                beginAtZero: true,
              },
            },
          },
        });
        console.groupEnd();
      </script>
    </body>
  </html>
```

기본 막대 그래프



기본 선 그래프



다중 막대 그래프