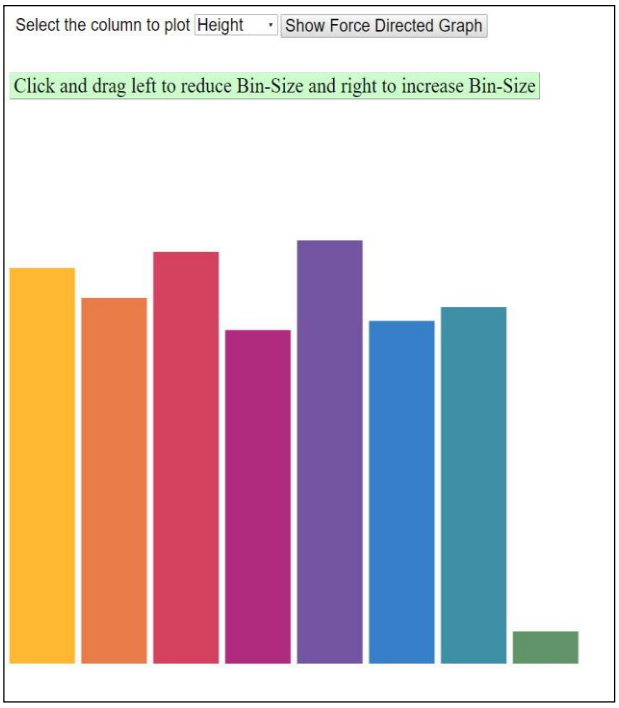
Visualization Assignment 1

I have used the baseball player data set which contains the information about the player height, weight and their average run scores as its data values.
Below are the implementation details with some screenshots:

Task: **1. Pick a variable and bin it into a fixed range (equi-width) of your choice**
2. create a bar chart of the variable you picked in 1.

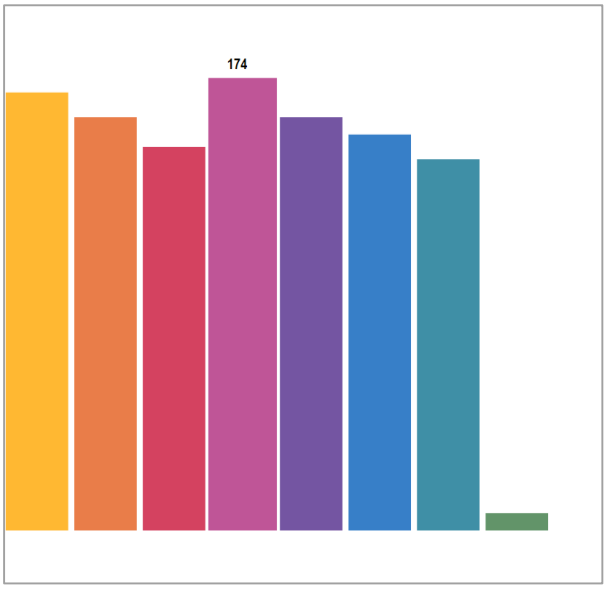
First, I load the data into arrays for each column. I have taken 10 as my initial bin count. Based on this bin I create equally spaced bins and count the frequency of the data lying in that particular bin-range.




```
function refresh(arr,bin)
{

    var binSize= ((d3.max(arr)- d3.min(arr))/bin);
    var dataset=[];
    for(var i=0;i<bin+1;i++)
            dataset.push(0);
    arr.forEach(function (d){

        var index = Math.floor((d-d3.min(arr))/binSize);

            dataset[index]++;
    });

    if(fig==0){
        document.getElementById("chart").innerHTML='';
        createHistogram(dataset,bin);
    }
    else{
        document.getElementById("chart").innerHTML='';
        createPiechart(dataset,bin);
    }
```

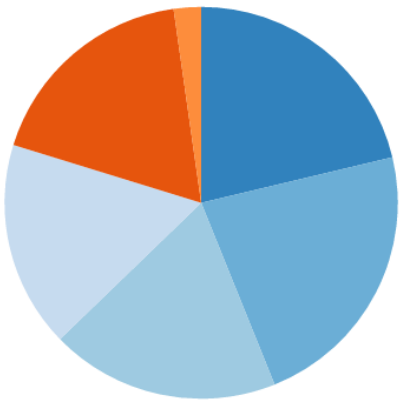
Task: 3. **Using a menu, allow users to select a new variable and update chart**.
4.**Only on mouse-over display the value of the bar on top of the bar**.
5. **on mouse-over make the bar wider and higher to focus on it**

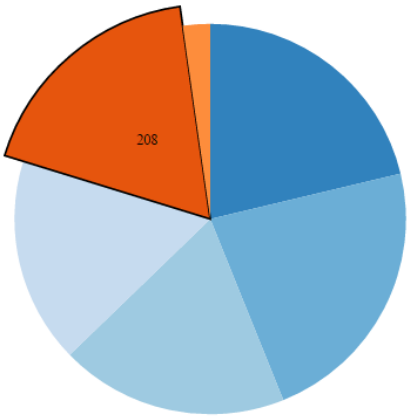
Created a menu item where user can select the particular column to plot and based on which the figure is refreshed. On mouse-over, adjusted the starting position of the bar and its width and height.




```
.on('mouseover',function(d,i){
    d3.select(this)
    .attr("y",d3.select(this).attr('y')-30)
    .attr("height",parseInt(d3.select(this).attr('height'))+40)
    .attr("x",(i*barwidth)+ (i-1)*baroffset+baroffset/2)
    .attr('width',barwidth+baroffset)
    .style('opacity',.8)
    .transition();
     d3.selectAll("text")
    .select(function(d, ind) { return ind === i ? this : null; })
    .attr("y",function(d)
    {
        return h-yscale(d)-42 ;
    })
    .style("opacity",1);

})
.on('mouseout',function(d,i){
    d3.select(this)
    .attr('width',barwidth)
    .attr('height',function(d,i){
        return yscale(d);
        })
    .attr('y',function(d,i){
        return (h- yscale(d));
    })
    .attr('x',i*(barwidth+baroffset))
    .style('opacity',1)

     d3.selectAll("text")
    .select(function(d, ind) { return ind === i ? this : null; })
    .attr("y",function(d)
    {
        return h-yscale(d)-42 ;
    })
    .style("opacity",0);
```

Task 6. On Mouse Click anywhere on the bar, transform the bar into pie chart and vice versa. Same functionalities about value being displayed and highlighted on mouse over. Cycle button cycles through the values of different columns. Mouse Click changes the pie chart to bar.

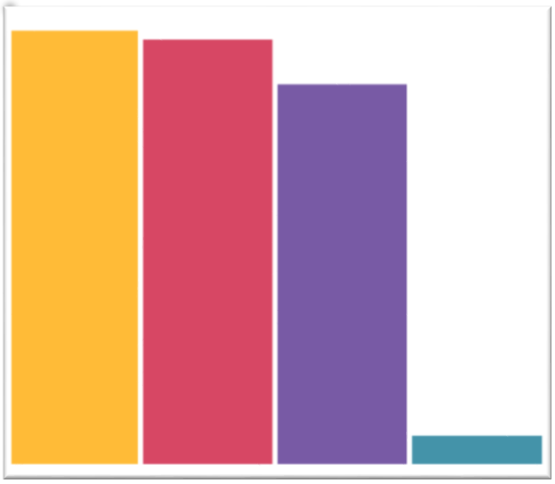


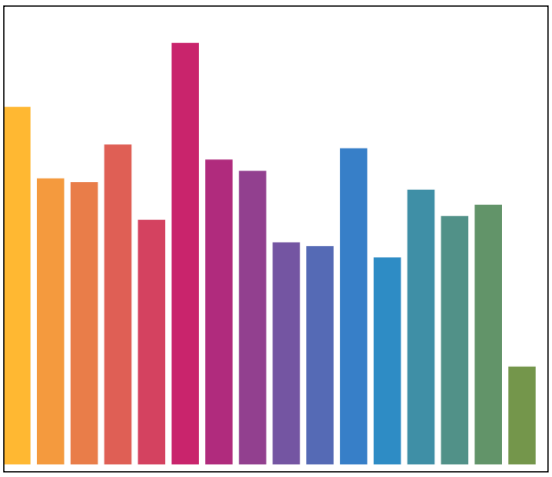


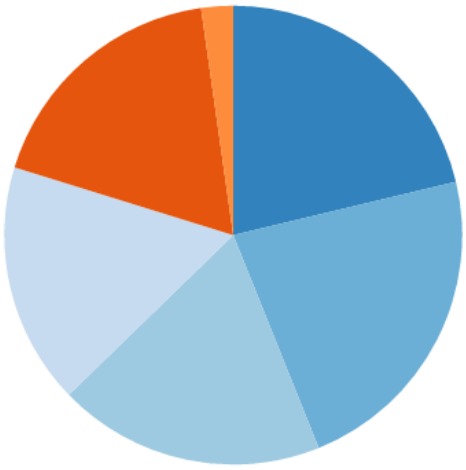

```
.on("mouseover",function(d){
  d3.select(this)
       .attr("stroke","black")
       .transition()//.delay(200)
       .attr("d",marc)
       .attr("stroke-width",2);
       svg.append("text")
         .attr("transform", function() {
              return "translate(" + arc.centroid(d) + ")";
          })
         .style("text-anchor", "middle")
         .style("font-size", 15)
         .attr("class", "label")
         .style("opacity",100)
         .text(d.value);
  })
.on("mouseout",function(d){
  d3.select(this)
  .attr("d",arc)
  .transition().delay(20)
  .attr("stroke","none")
  svg.selectAll("text")
             .style("opacity",0);
})
```

Task 7. **Mouse moves left (right) should decrease (increase) bin width/size**

Dragging the mouse on the light blue color area will decrease(increase) the bin width. Minimum number of bins will be 4 and Maximum is 16 in both the graphs.







Extra Credits: **Force directed graph for a given length**.

Click on any of the circles and drag around.The distance between the circles can be changed by entering the value in the box above and clicking on the button “Change Force Directed Edge Length”