CIS*2750
Assignment 2
Bonus Functions (5%)

The functions below will be necessary in Assignment 3, but you do not have to implement them now.

Please note that the test case(s) for these functions will use all of them together, and the bonus mark will all or nothing - no part marks will be given for the bonus. If any of the tests/functions fail, you will not get the 5% bonus mark. The `SVG` object created by these functions must be correct, and pass validation by `validateSVG`.

Moreover, the grade for these functions will be given only if your score on the main A2 test harness is 95%. As a result, do not spend time on these functions unless you have already implemented and tested all of the required Module 1 - 3 functions.

Bonus functions

```
SVG* JSONtoSVG(const char* svgString);
Rectangle* JSONtoRect(const char* svgString);
Circle* JSONtoCircle(const char* svgString);
```

1. `SVG* JSONtoSVG(const char* svgString);`

This function create a simple `SVG` object from a JSON string. The `svgString` will have the format:

```
{"title":"titleVal","descr":"descrVal"}
```

For example:
`{"title":"stuff","descr":"junk"}`
or
`{"title":"","descr":""}`

The newly created `SVG` must be property initialized - all fields must be filled in (use `http://www.w3.org/2000/svg` for the namespace), and all lists must be initialized but empty.

If the argument is NULL, the function must return NULL.

2. `Rectangle* JSONtoRect(const char* svgString);`

This function will create a simple waypoint from a JSON string. The string will gave the following format:
`{"x":xVal,"y":yVal,"w":wVal,"h":hVal,"units":"unitStr"}`

In other words, in input for this function is has almost the same format as the output of `rectToJSON`, except for the attributes.

For example: `{"x":1,"y":2,"w":19,"h":15,"units":"cm"}` would be a Rectangle with `x =1cm, y=1cm`, `width=19cm`, and `height = 15cm`.

The newly created `Rectangle` must be property initialized - fields `x`, `y`, `with`, `height`, and `units` must be filled in, and the list `otherAttributes` must be initialized but empty.

If the argument is NULL, the function must return NULL.

3. `Circle* JSONtoCircle(const char* svgString);`

This function will create a simple waypoint from a JSON string. The string will gave the following format:
`{"cx":xVal,"cy":yVal,"r":rVal,"units":"unitStr"}`

In other words, in input for this function is has almost the same format as the output of `circToJSON`, except for the attributes.

For example: `{"cx":32,"cy":32,"r":30,"units":""}` would be a circle with `x=32`, `y=32`, `radius=30` and no units.

The newly created `Circle` must be property initialized - fields `x`, `y`, `r`, and `units` must be filled in (`units` is an empty string), and the list `otherAttributes` must be initialized but empty.

If the argument is NULL, the function must return NULL.