# CMPE360
# FALL 2023
## Project 1- Compositing Images

Within this project, we aim to create an alpha compositing function for raster images utilizing JavaScript.

You will receive an HTML file that contains a basic web-based image compositing tool.

The component that is absent in this application (which you will be responsible for) is the JavaScript function that combines a foreground image with a background image using alpha blending. This is what the function appears like:

```
function composite(BackGround, ForeGround, ForeGroundOpacity,
ForeGroundPosition) {
    var BackGroundData = BackGround.data;
    var ForeGroundData = ForeGround.data;
    var width = BackGround.width;
    var height = BackGround.height;
```

This function requires four input parameters:

Hint: You can check the link to Image parameters in JavaScript.
Hint: You can use PyCharm Ide to open project.

- **BackGround**: This is the original background image that needs modification.
- **ForeGround**: It represents the foreground image that will be combined with the background image.
- **ForeGroundOpacity:** Denoting the opacity of the foreground image, this argument is responsible for adjusting the alpha values of the foreground image.

- **ForeGroundPosition**: This indicates the placement of the foreground image on the background image. It contains pixel-based x and y coordinates. In this system, where x=0 and y=0 aligns the top-left pixels of both foreground and background images. Note that x and y coordinates provided may be negative.

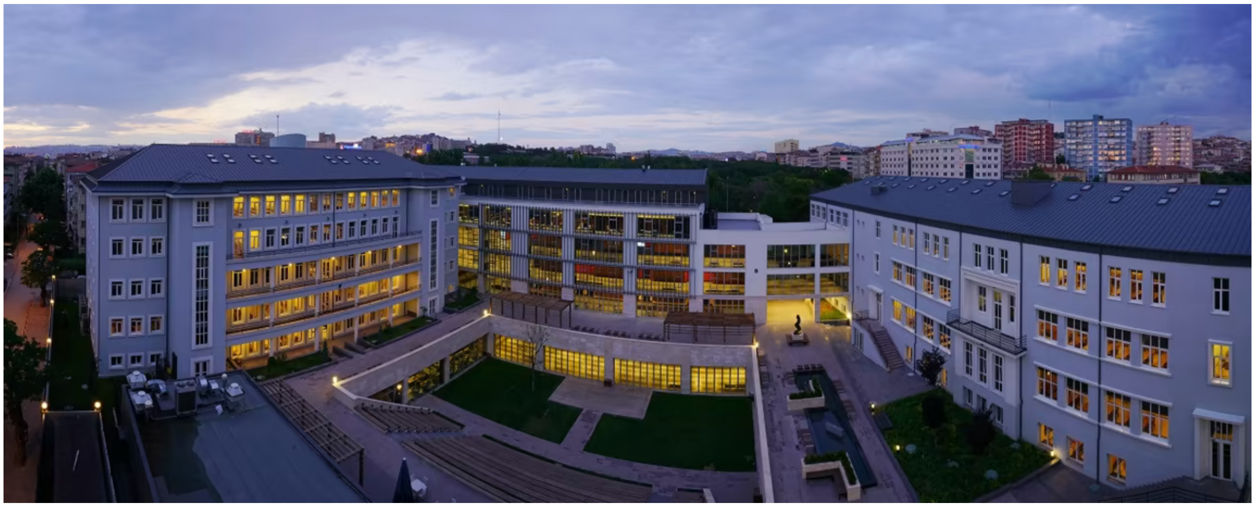

*Figure 1 : background.png*

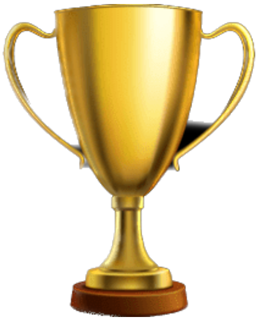

*Figure 2: cup.png*

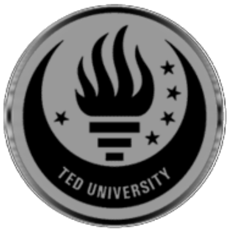

*Figure 3: tedu.png*

This function doesn't output anything. Instead, it alters the original background image. The foreground image may vary in size, and its position can be negative. Any parts of the foreground image that extend beyond the background image will be disregarded.

For this project, you have been given the following files:

- **Please download <u>project1.zip</u> file from LMS to complete the work.**
- ***project1.html:*** This file encompasses the complete interface implementation, excluding the composite function.
- ***project1.js:*** It holds a temporary placeholder for the composite function. This file is included in project1.html. Ensure both files are in the same directory.

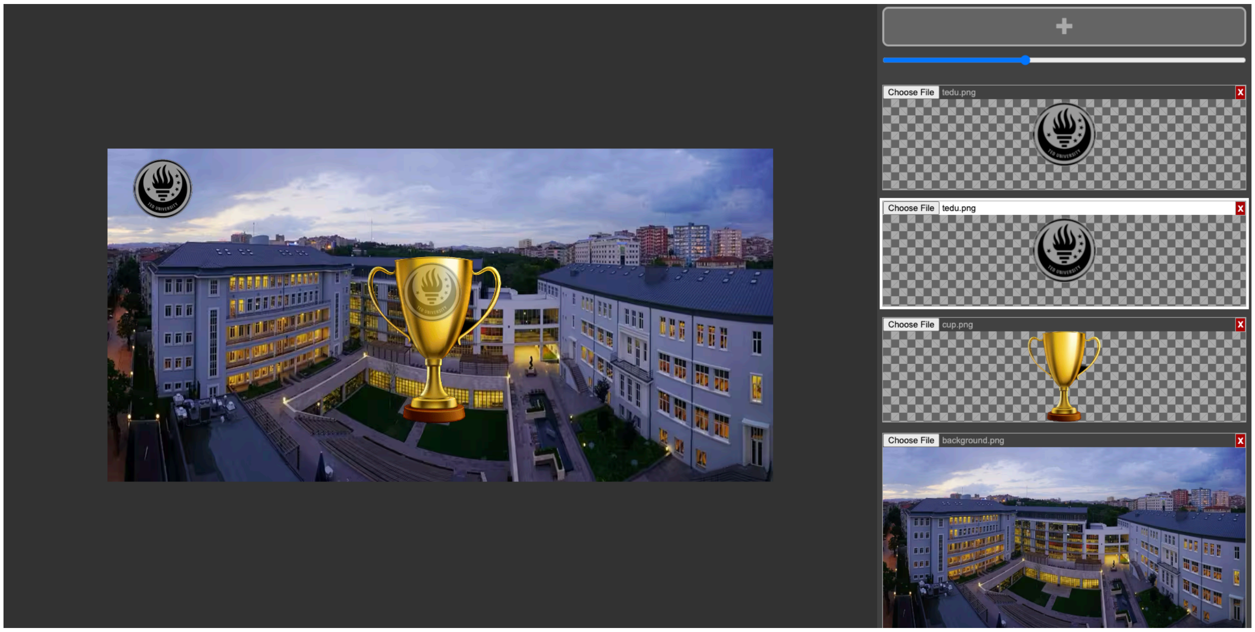

*Figure 4: Example Testing*

You also have access to these images for testing: ***background.png, cup.png*** and ***tedu.png***.

Your task is to finalize the composite function within the project1.js file. This function should blend the specified foreground image onto the provided background image, considering the given opacity and position arguments for the foreground image. Once done, submit the completed project1.js file on LMS. Please refrain from renaming project1.js in your submission.

**Useful tip:** Pressing the F4 key will refresh the project1.js file without reloading the entire page, allowing you to swiftly test your implementation."

## What to Submit:

Follow the instruction and prepare a pdf report for uploading to the LMS, your pdf report should include all parts. Please make sure your answers are numbered as below:

### PART1

- Save and add the image with cup.png and background.png. **(5 points)**
- Save and add the image with cup.png , tedu.png and background image**.(5 points)**
- Save and add the image with cup.png, tedu.png and background image with changing transparency and explain your process**.(5 points)**
- Create a new combined image by adding cup.png, tedu.png and background.png and any additional .png image you want (you can add it by finding a .png image on the internet) and save this final image and add it to your report. Also your new added image must be transparency. **.(5 points)**

### PART2

- Explain your Composite function in detailed. Please explain all process you wrote in detailed. **(30 points)**

## PART3

- Quiz part.**(40 points)** (You will take the quiz, the time of the quiz will be announced later via LMS.)
- Don’t forget submit your project1.js file to VPL. **(10 points)**
- Don’t forget your report as a **pdf** file to the LMS.( Your report will be checked in Turnitin.)

**IMPORTANT: You will make 2 different submission in total. The first will be to just upload your project.js code to VPL on LMS. Secondly, you will upload your report in pdf format to the "Project1 Report Submission" part on LMS.**