Aerolyzer - Pseudocode

1. Image Restrictions

Throughout the upload process, images will be required to meet various criteria before being accepted for aerosol content analysis. To accomplish this requirement, a multitude of functions will be created, each aimed at verifying that a certain restriction has been met. To ensure the simplicity of Aerolyzer's initial development, as well as future adaptions, information regarding image criteria will be stored in a single file to be referenced by the various restriction functions outlined in this chapter.

1.1 Image criteria file

Word Description: This file will contain all of the image criteria necessary to verify all image restrictions have been met.

Pseudocode:

```
#Image criteria initialization
ACCEPTABLE_FILE_TYPES = {“JPEG”, “JPG”, “PNG”};
ACCEPTABLE_MOBILE_DEVICES = {“i5s”,”i6”,”i6s”,etc}
MAX_FILE_SIZE = 200;
IMG_WIDTH_MIN = xxx;
IMG_HEIGHT_MIN = xxx;
```

1.1 The image must be from an accepted mobile device.

Word Description: This function will take in the EXIF data of an image and the list of accepted mobile devices as parameters. It will then determine what device the image was taken by, and compare this device to the list of supported mobile devices. Upon obtaining a positive match, the function will immediately return true. Otherwise, it will return false.

Pseudocode:

```
function(string EXIF_DATA, array ACCEPTABLE_MOBILE_DEVICES) {
        string imageDevice = find the device the image was taken on;
        for(length of ACCEPTABLE_MOBILE_DEVICES) {
                if(imageDevice is the same as ACCEPTABLE_MOBILE_DEVICES[i])
                        #the above comparison must not be case-sensitive(?)
                        return true;
```

```
            i++;
        }
        return false;
}
```

1.2 The image cannot be edited or filtered in any way.

Word Description: This function will take in the EXIF data as a parameter. From the EXIF data, this function will then determine the image's modification date and creation(?) date. Upon comparing these two dates, if they are identical the function will return true. Otherwise, it will return false.

Pseudocode:

```
function(string EXIF_DATA) {
        string modDate = find the image's modification date from EXIF_DATA;
        string creationDate = find the image's creation date from EXIF_DATA;
        if(modDate == creationDate)
            return true;
        return false;
}
```

1.3 Must be a picture of a direct landscape with a sky and view.

Word Description: This function will take in the EXIF data of an image as a parameter. It will then magically determine whether or not the image is of a landscape with a sky and view.

Pseudocode:

```
function(string EXIF_DATA) {

}
```

1.4 The image must be no larger than 200kb.

Word Description: This function will take in the EXIF data of an image and the maximum size of the image as parameters . It will then compare the image's size to ensure it's less than the maximum size. If the images size is greater than the maximum size, the function will return true. Otherwise, it will return false.

Pseudocode:

```
function(string EXIF_DATA, int IMAGE_SIZE_MAX) {
        int imageSize = find image size from EXIF_DATA;
        if(imageSize <= IMG_SIZE_MAX)
            return true;
```

```
        return false;
}
```

1.5 The file type of the image must be .jpg or .png.

Word Description: This function will take in the EXIF data of an image and the list of acceptable file types as parameters. It will then compare the image's FILE TYPE against a list of accepted file types - a comparison which will not be case-sensitive. Upon obtaining a positive match, the function will immediately return true. Otherwise, it will return false.

Pseudocode:

```
function(string EXIF_DATA, array ACCEPTABLE_FILE_TYPES) {
        string imageFileType= find the file type of the image from EXIF_DATA
        for(length of ACCEPTABLE_FILE_TYPES){
                if(imageFileType is the same as ACCEPTABLE_FILE_TYPES[i])
                        #the above comparison must not be case-sensitive(?)
                        return true;
                i++;
        }
        return false;
}
```

1.6 The image must exceed the minimum resolution.

Word Description: This function will take in the EXIF data of an image and the minimum resolution width and height accepted as parameters. It will then compare the image's width and height against these accepted values to ensure that they are greater than the minimum image resolution. If each condition is passed, the function will return true. Otherwise, it will return false.

Pseudocode:

```
function(string EXIF_DATA, int IMAGE_HEIGHT_MIN, int IMAGE_WIDTH_MIN) {
        int imageWidth = find image width from EXIF_DATA;
        int imageHeight = find image height from EXIF_DATA;
        if(imageHeight >= IMG_HEIGHT_MIN && imageWidth >= IMG_WIDTH_MIN)
                return true;
        return false;
}
```

1.7 Location services must be enabled for the camera.

Word Description: This function will take in the EXIF data as a parameter. It will then determine the image's location information from the EXIF data. If the image location information returned from the EXIF data is not null, the function will return true. Otherwise, it will return false.

Pseudocode:

```
function(string EXIF_DATA) {
        string locationInfo = find the image's location information from EXIF_DATA
        if(locationInfo != null)
                return true;
        return false;
}
```