

CSSE 230: Basic analysis of algorithms worksheet.

Consider the following procedure:

```
public static int binarySearch(int[]a, int e){
    int low = 0;
    int high = a.length-1;
    int mid;
    while (low <= high) {
        mid = (low + high) / 2;
        if (a[mid] < e) low = mid + 1;
        else if (a[mid] > e) high = mid - 1;
        else return mid;
    }
    return -1;
}
```

- 1) Which expression is representative of the “work” done by the procedure?
- 2) When does the **best** case occur?
- 3) How many times does the expression from (1) get execute in the **best** case?
- 4) When does the **worst** case occur?
- 5) How many times does the expression from (1) get execute in the **worst** case?
- 6) What do we mean by the **average** case?

Space for notes of average case analysis: