

Problem 5.1

Component based architecture is built from tightly integrated, reusable components within a single application, while a service oriented architecture is built from loosely coupled services that communicate over a network and can be used independently by multiple systems.

Problem 5.2

Component-based architecture because the application runs entirely on one device and no external database or network communication is required

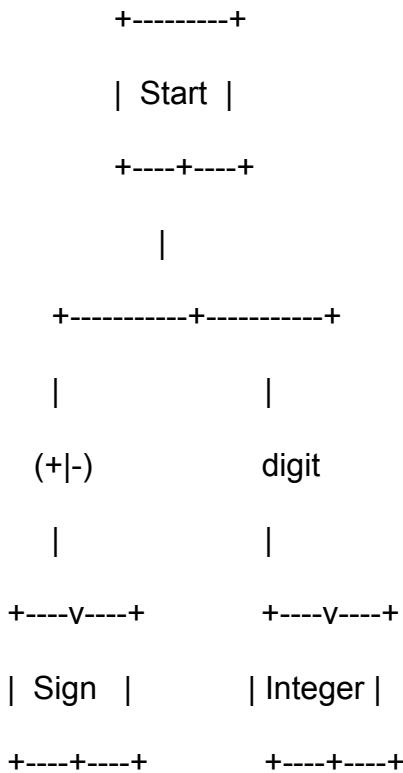
Problem 5.4

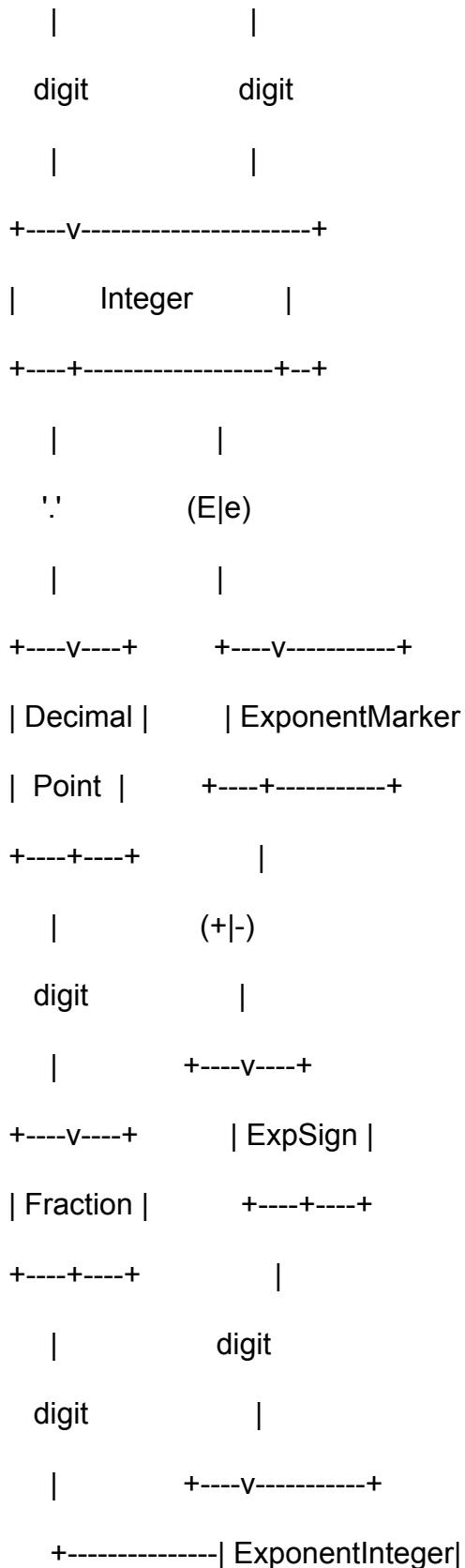
Service-oriented architecture because the application must support communication over a network and player actions must be synchronized between devices

Problem 5.6

ClassyDraw should use a simple local database or file-based storage with periodic autosaving

Problem 5.8





```
+-----+
```

```
|
```

```
digit
```

```
|
```

```
v
```

```
(self-loop)
```

```
|
```

```
v
```

```
+-----+
```

```
| Accept |
```

```
+-----+
```

Problem 6.1

- a) position (x, y), color, line thickness, visibility, and ability to be drawn on screen
- b) width and height (not for line or text), radius (ellipse, star only), number of points (star only), and font, font size, and string content (text only)
- c) width/height (rectangle, ellipse), rotation (line, star), fill color (rectangle, ellipse, star)
- d) shared properties → base class (drawable), partially shared properties → intermediate abstract classes, unique properties → concrete subclasses

Problem 6.2

```
Drawable
```

```
(x, y, color, visible)
```

```
|
```

```
|  
ShapeObject  
(lineThickness)
```

```
|  
Text  
(font, fontSize, content)
```

```
|
```

| | |
Line FilledShape Star

(fillColor)

|

| | |
Rectangle Ellipse