

ENGINEERING H192
DAILY ASSIGNMENT B02

For this assignment you are to draw a complete flowchart using the algorithm given below. The flowchart must be drawn neatly on Engineering or grid paper using the appropriate symbols.

Problem: A large box contains three types of geometric objects, cubes, spheres, and cones, which are either black or white. The objects must be sorted into two baskets according to color. When the sorting is complete you must display the number of: (1) black objects, (2) white objects, (3) cubes, (4) spheres, and (5) cones.

Assumptions:

1. There are two empty baskets present and labeled: #1 – black objects, #2 – white objects
2. There are counters of some sort present.
3. The person sorting can distinguish between black and white and between cube, sphere, and cone.
4. Only these three types of objects are in the box and they are either black or white.

Algorithm:

1. Set all counters to zero
2. Are there any objects in large box? (Hint: think "while")
 - a. If no, skip to Step 6
 - b. If yes, continue on with next step
3. Select an object from the large box
4. **IF** object is a "cube", then
 - a. Add 1 to the "cube" counter
 - b. **IF** object is black then
 - i. Place object in box #1
 - ii. Add 1 to "black" counter
 - ELSE**
 - i. Place object in box #2
 - ii. Add 1 to "white" counter
- ELSE IF** object is a "sphere", then
 - a. Add 1 to the "sphere" counter
 - b. **IF** object is black then
 - i. Place object in box #1
 - ii. Add 1 to "black" counter
 - ELSE**
 - i. Place object in box #2
 - ii. Add 1 to "white" counter
- ELSE**
 - a. Add 1 to the "cylinder" counter
 - b. **IF** object is black then
 - i. Place object in box #1
 - ii. Add 1 to "black" counter
 - ELSE**
 - i. Place object in box #2
 - ii. Add 1 to "white" counter
5. Go to Step 2
6. Display the number of cubes, spheres, cylinders, black objects, and white objects
7. Stop

Name _____ Instr. _____ Room _____ Seat _____ Hour _____