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# Object-Oriented Modeling with UML

Activity Diagram

# Explanation of Exercise Examples

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Presented by Nicholas Bzowski

Activity Diagram

# Example: BingoSort

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# Example: Bingo Sort

Below the code for Bingo Sort is given. Model the Bingo Sort algorithm as an activity diagram.

```
void BingoSort(a[], int n) {
  int i = n-1;
  while (i > 0) {
    int j, nmax = 0;

    //find biggest
    for (j = i; j > 0; --j) {
      if (a[nmax] < a[j])
         nmax = j;
    }
    Swap(a[i], a[nmax]);

    /*if any others are the same
       then put them there too */

    nmax = i--;
    j = i;
    while (j > 0) {
      --j;
      if (a[nmax] == a[j]) {
      Swap(a[i], a[j]);
      --i;
      }
    }
  }
}
```

Activity Diagram

# Example: Viral Infection

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# Example: Viral Infection

Model the following process (control flow) when viral disease symptoms occur using an activity diagram:

When a person comes in with viral disease symptoms, they are tested for viruses to find out if they are infected. If they are infected, the person is quarantined and those in their environment are informed. If the test is negative, the person is sent home.

Activity Diagram

# Example: Calibrating a Scale

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# Example: Calibrating a Scale

Model the following process (control flow) of a scale calibration using an activity diagram: At the deli, it is noticed that the scales for the goods are due for calibration. The scale is then dismantled, packed and sent to the scale manufacturer. The manufacturer checks the scales for problems. If problems are found, they are corrected and the scales are checked again to see if they still have problems. Once all problems have been corrected, the scales are adjusted and then sent to the calibration point. The scales are calibrated at the calibration point and a new seal is affixed before the scales are returned to the deli.

Activity Diagram

# Example: Writing a Book

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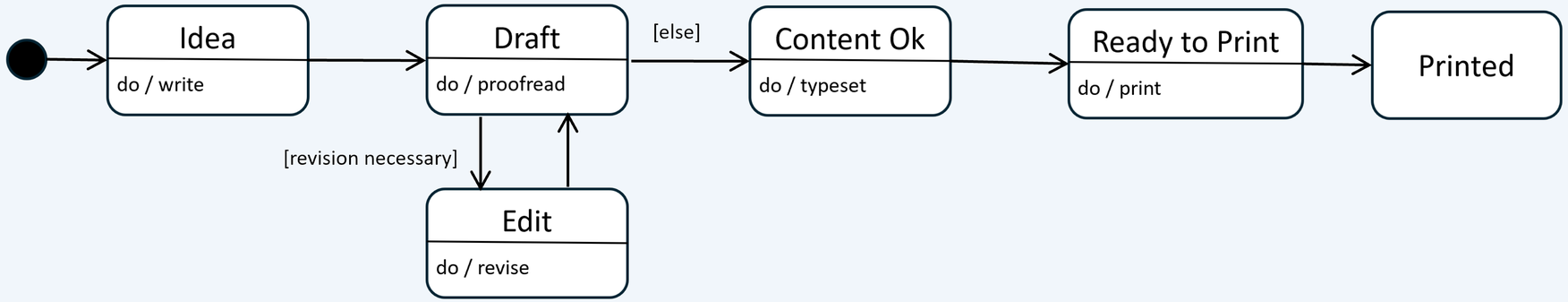
# Example: Writing a Book



# Activity Diagram
# **Example: Diving**

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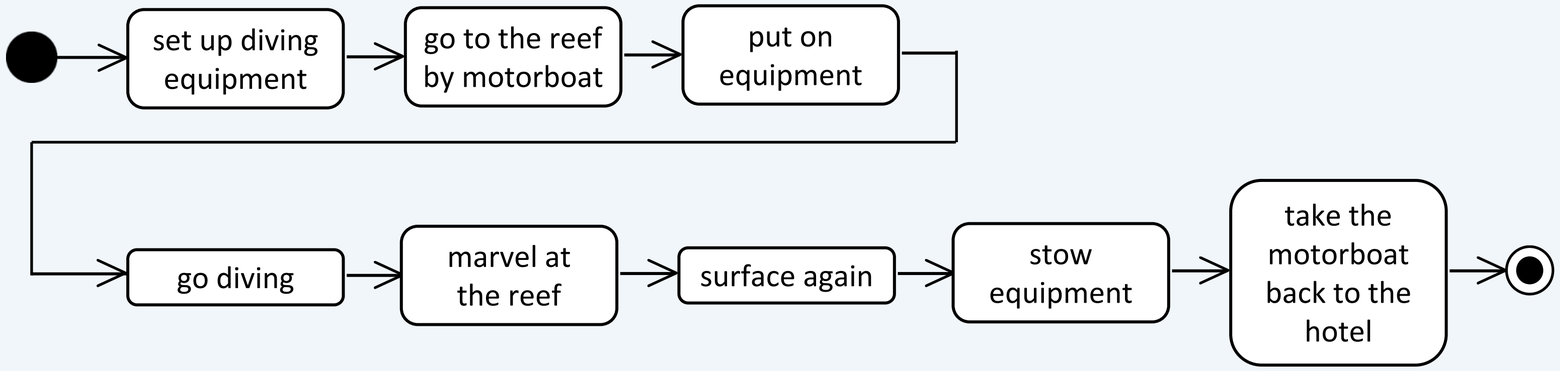
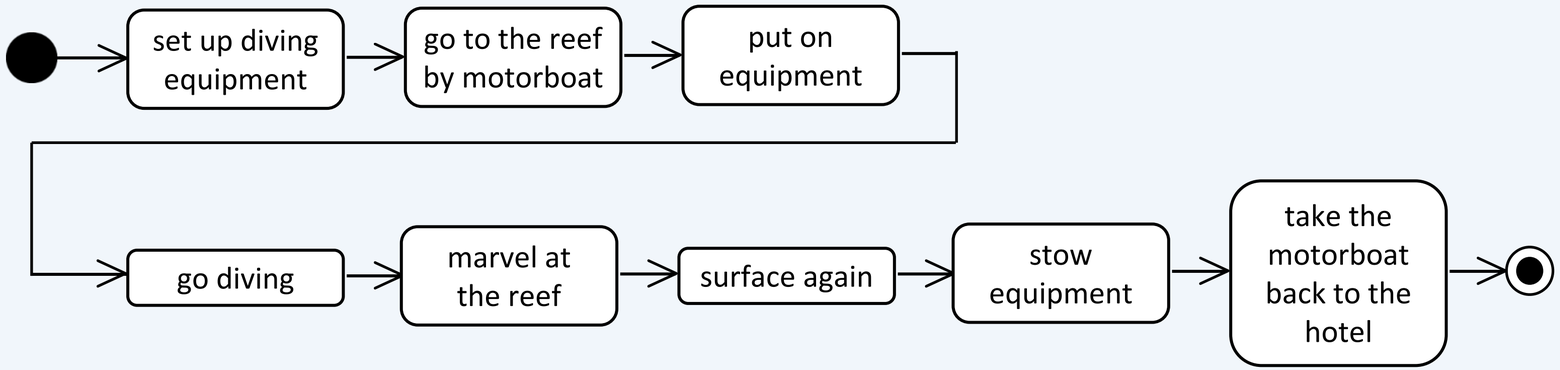
# Example: Scuba Diving

An activity diagram on the subject of scuba diving is given. Change or extend the diagram so that the following error situation is dealt with: When putting on the scuba diving equipment, the diver realizes that the scuba tank is empty. Replacement equipment is put on so that the dive can still take place.



# Example: Scuba Diving

An activity diagram on the subject of scuba diving is given. Change or extend the diagram so that the following error situation is dealt with: During the scuba diving process, the diver suddenly runs out of air. An emergency ascent must be made immediately, after which a dinghy is used to return to the hotel.



# Activity Diagram
# **Example: Online Shop**

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# Example: Online Shop

When a particular book is desired, the book is searched for in the online store. The desired book is then selected and the book order is sent off. Once the book has been delivered, it must be registered. The last step is to store the book and the process is complete.

Model this process (control flow) from the perspective of the person ordering the book using an activity diagram.

Activity Diagram

# Example: Sending a Letter

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# Example: Sending a Letter

The following activity diagram is given. Expand or change the activity diagram so that all activities involved in compiling or sending the letter are outsourced to a separate process - in order to increase readability or to be able to use the process of compiling/sending in other processes.