

Figure 5.6 Wheels class diagram with a Payment class added

them. The simple rule is that attributes belong in the class that they describe.

*Bike class.* We have already decided that *bike number*, *type*, *size*, *make*, *model*, *daily hire rate* and *deposit* belong in the Bike class. The requirements list (R10) specifies that the system ‘keep track of the state of each bike, e.g. whether it is in stock, hired out or being repaired’. We need to add an attribute *available* that can take these bike states as its values. This gives us the Bike class in Figure 5.7.

*SpecialistBike class.* The SpecialistBike class needs more or less the same attributes as Bike with the ‘extra details about specialist bikes’ mentioned in R11 of the requirements list. This refers to the type of specialist bike, e.g. penny farthing, tandem, unicycle etc., and the approximate date that this type of bike was used – its epoch, e.g. Victorian, early twentieth century, etc. Wheels make an insurance charge for specialist bikes; this amount must be recorded. This gives us the SpecialistBike class in Figure 5.8.

*Hire class.* We decided earlier that *start date* and *estimated duration* are attributes of Hire. If a bike is returned late, the cost of the extra time is deducted from the deposit; if the bike is returned damaged, a mechanic estimates the cost of the repair and this amount is

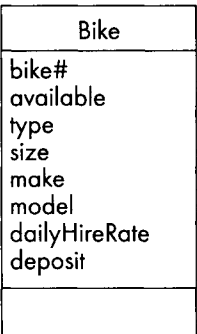


Figure 5.7 Bike class