package com.twitter.product\_mixer.core.model.common.identifier

/\*\*

\* Product identifier

\*

\* @note This class should always remain effectively `final`. If for any reason the `sealed`

\* modifier is removed, the equals() implementation must be updated in order to handle class

\* inheritor equality (see note on the equals method below)

\*/

sealed abstract class ProductIdentifier(override val name: String)

extends ComponentIdentifier("Product", name) {

/\*\*

\* @inheritdoc

\*/

override def canEqual(that: Any): Boolean = that.isInstanceOf[ProductIdentifier]

/\*\*

\* High performance implementation of equals method that leverages:

\* - Referential equality short circuit

\* - Cached hashcode equality short circuit

\* - Field values are only checked if the hashCodes are equal to handle the unlikely case

\* of a hashCode collision

\* - Removal of check for `that` being an equals-compatible descendant since this class is final

\*

\* @note `candidate.canEqual(this)` is not necessary because this class is final

\* @see [[http://www.artima.com/pins1ed/object-equality.html Programming in Scala,

\* Chapter 28]] for discussion and design.

\*/

override def equals(that: Any): Boolean =

that match {

case identifier: ProductIdentifier =>

// Note identifier.canEqual(this) is not necessary because this class is effectively final

((this eq identifier)

|| ((hashCode == identifier.hashCode) && ((componentType == identifier.componentType) && (name == identifier.name))))

case \_ =>

false

}

/\*\*

\* Leverage domain-specific constraints (see notes below) to safely construct and cache the

\* hashCode as a val, such that it is instantiated once on object construction. This prevents the

\* need to recompute the hashCode on each hashCode() invocation, which is the behavior of the

\* Scala compiler case class-generated hashCode() since it cannot make assumptions regarding field

\* object mutability and hashCode implementations.

\*

\* @note Caching the hashCode is only safe if all of the fields used to construct the hashCode

\* are immutable. This includes:

\* - Inability to mutate the object reference on for an existing instantiated identifier

\* (i.e. each field is a val)

\* - Inability to mutate the field object instance itself (i.e. each field is an immutable

\* - Inability to mutate the field object instance itself (i.e. each field is an immutable

\* data structure), assuming stable hashCode implementations for these objects

\*

\* @note In order for the hashCode to be consistent with object equality, `##` must be used for

\* boxed numeric types and null. As such, always prefer `.##` over `.hashCode()`.

\*/

override val hashCode: Int = 31 \* componentType.## + name.##

}

object ProductIdentifier {

def apply(name: String)(implicit sourceFile: sourcecode.File): ProductIdentifier = {

if (ComponentIdentifier.isValidName(name))

new ProductIdentifier(name) {

override val file: sourcecode.File = sourceFile

}

else

throw new IllegalArgumentException(s"Illegal ProductIdentifier: $name")

}

}