|  | Modification |                                  |   |   |              | t dete     | ction          | Error reported   |                       |                          |  |
|--|--------------|----------------------------------|---|---|--------------|------------|----------------|--|-----------------------|--------------------------|--|
| Data point number                            | Line number  | To be replaced                   | Replace with                            | Original line text [sans semantically irrelevant white space]                                 | Compile-time | Run-time   | Undetected     | Error message / details  | reporeted line number | Problem identified       | Line distance from in-<br>jected fault |
| 1 Library                                    | 54           | random                           | albums                                  | Random random = new Random();   | x            |            |                | <pre>cannot find symbol symbol : variable random location: class Library     int i = random.nextInt();</pre>   | 67                    | yes                      |  |
| 2 Library                                    | 78           | random                           | rating                                  | randomTrackList.get(random.nextInt(t<br>empTrackList.size()));                                | x            |            |                | <pre>int cannot be dereferenced randomTrackList.get(rating.nextInt(tempTrackList.siz e()));</pre>  |                       | yes                      | 0                                      |
| 3 Artist                                     | 10           | name                             | n                                       | private String name;  | x            |            |                | symbol : variable name location: class Artist  | 19                    | yes                      | 9                                      |
| 4 Track                                      | 32           | title                            | s                                       | Title =t;   | x            |            |                | required: double s = t;  cannot find symbol symbol : variable a  | 32                    | yes                      | 0                                      |
| 5 Album                                      | 37           | albumName                        | а                                       | albumName = n;  | x            |            |                | location: class Album     a = n;     cannot find symbol symbol : method readLine()   | 37                    | yes                      | 0                                      |
| 6 Main                                       | 130          | buffr                            | str                                     | str = buffr.readLine();   | х            |            |                | <pre>location: class java.lang.String     str = str.readLine(); incompatible types found : double required: Artist</pre>   | 130                   | yes                      | 0                                      |
| 7 Track<br>8 Track                           | 78<br>33     | length<br>a                      | artist<br>artist                        | length = I;<br>artist = a;  | x            |            | x              | artist = 1; ^n/a cannot find symbol  | 78<br>n/a             | yes<br>n/a               | 0<br>n/a                               |
| 9 Track                                      | 56           | a                                | date                                    | public void setArtist(Artist a)   | x            |            |                | <pre>symbol : variable a location: class Track</pre>   | 58                    | yes                      | 2                                      |
| 10 Track                                     | 46           | t<br>albumName                   | location<br>artist                      | , , , ,   | x            |            |                | symbol : variable t location: class Track  | _                     | yes                      | 2                                      |
| 12 Track 13 Track 14 Artist                  | 100          | size<br>rating<br>members        | title<br>size                           | albumName = aName;<br>size=z<br>return rating;<br>members = new ArrayList <artist>()</artist> | x<br>x<br>x  |            |                | Incompatible types – found java.lang.String but expected Artist Incompatible types – found double but expected java.lang.String Possible loss of precision found : double required: int Incompatible types – found java.util.ArrayList <artist> but expected java.lang.String</artist> | 87<br>100             | yes<br>yes<br>yes<br>yes | 0                                      |
| 15 Album  16 Artist  17 Track                | 29<br>55     | albumType<br>isSoloist<br>title  |   | albumType=aType; return isSoloist; title = t;   | x<br>x       |            |                | n/a Incompatible types – found java.util.ArrayList <artist>but expected boolean Incompatible types – found java.lang.String but expected int</artist>  | n/a<br>55             | n/a<br>yes<br>yes        | n/a<br>0                               |
| 18 Track 19 Track 20 Album                   | 33<br>105    | artist location artist           | location<br>date<br>tracks              | artist = a location = I; artist = a;  | x            |            | x              | n/a Incompatible types – found artist but expected java.lang.String n/a Incompatible types – found artist but expected java.util.ArrayList <track/>  | 33<br>n/a<br>30       | yes<br>n/a               | 0<br>n/a<br>0                          |
| 21 Album<br>22 Artist<br>23 Album            | 50           | albumType<br>isSoloist<br>length | albumName<br>members<br>albumType       | albumType = t;<br>isSoloist = s;<br>double length = 0.0;                                      | x<br>x       |            | х              | n/a incompatible types - found boolean but expected java.util.ArrayList <artist> cannot find symbol - variable length</artist>   | n/a<br>50<br>77       | yes                      | n/a<br>0<br>2                          |
| 24 Album<br>25 Track<br>26 Artist            | 48           | length<br>title<br>members       | albumType<br>guestArtist<br>name        | title = t;  | x<br>x<br>x  |            |                | incompatible types - found double but expected java.lang.String incompatible types - found java.lang.String but expected Artist incompatible types - found java.util.ArrayList <artist> but expected java.lang.String</artist>   | _                     | yes                      | 0 0                                    |
| 27 Track<br>28 Track<br>29 Album<br>30 Album | 33<br>105    | length artist rating albumName   | date<br>location<br>albumName<br>tracks | return length; artist = a; return rating/tracks.size(); private String tracks;                | x<br>x<br>x  |            |                | incompatible types - found java.lang.String but expected doublt incompatible types - found Artist but expected java.lang.String operator / cannot be applied to java.lang.String,int tracks is already defined in Album  | 33<br>105<br>12       | yes                      | 0 0 3                                  |
|  | 1            | •                                |   | totals  | 26           | 0<br>total | <i>4</i><br>30 | ·  | yes<br>no             | 26                       | 1.2                                    |