Teodor Samoila - Alexandru Cotofan
teodor.samoila@solera.com ; alexandru.cotofan@solera.com

```
private boolean checkDimensions(CLIQUEUnit other, int e) {
    for(int i = 0, j = 0; i < e; i++, j += 2) {
        if (dims[i] != other.dims[i]
            || bounds[j] != other.bounds[j]
            || bounds[j + 1] != bounds[j + 1]) {
          return false;
        }
    }
    return true;
}
```

other.bounds[j+1]

Problem 1: 2 points

```
@Override
public double[] computeMean() {
    // Not supported except for singletons.
    return points.size() == 1 ? points.get(1) : null;
}
```

points.get[0]

Problem 2: 2 points

```
protected PreDeConModel computeLocalModel(DoubleDBIDList neighbors, ....) {
    final int referenceSetSize = neighbors.size();
    ....
    // Shouldn't happen:
    if(referenceSetSize < 0) {
        LOG.warning("Empty reference set –
            should at least include the query point!");
        return new PreDeConModel(Integer.MAX_VALUE, DBIDUtil.EMPTYDBIDS);
    }
    ....
    for(int d = 0; d < dim; d++) {
        s[d] /= referenceSetSize;
        mvVar.put(s[d]);
    }
    ....
}
```

referenceSetSize < 1

Problem 3: 2 points

```
public String getStrippedSubstring() {
    int sstart = start, ssend = end;
    while(sstart < ssend) {
        char c = input.charAt(sstart);
        if(c != ' ' || c != '\n' || c != '\r' || c != '\t') {
            break;
        }
        ++sstart;
    }
    ....
}
```

replace || with &&

Problem 4: 2 points

```java
public static final ByteSequence prefixEndOf(ByteSequence prefix) {
  byte[] endKey = prefix.getBytes().clone();
  for (int i = endKey.length - 1; i >= 0; i--) {
    if (endKey[i] < 0xff) {
      endKey[i] = (byte) (endKey[i] + 1);
      return ByteSequence.from(Arrays.copyOf(endKey, i + 1));
    }
  }
  return ByteSequence.from(NO_PREFIX_END);
}
```

Problem 5: 3 points

```java
private static byte char64(char x) {
  if ((int)x < 0 || (int)x > index_64.length)
    return -1;
  return index_64[(int)x];
}
```

(int)x >= index_64.length.

Problem 6: 2 points

```java
@Override
public void putToCache(PutRecordsRequest putRecordsRequest)
{
  ....
  if (dataTmpFile == null || !dataTmpFile.exists())
  {
    try
    {
      dataTmpFile.createNewFile();
    }
    catch (IOException e)
    {
      LOGGER.error("Failed to create cache tmp file, return.", e);
      return;
    }
  }
  ....
}
```

if (dataTmpFile != null && ! dataTmpFile.exists())

Problem 7: 2 points

```
private void shiftRightDestructive(int wordShifts,
                                   int bitShiftsInWord,
                                   boolean roundUp)
{
  if (wordShifts == 0 && bitShiftsInWord == 0) {
    return;
  }

  assert (wordShifts >= 0);
  assert (bitShiftsInWord >= 0);
  assert (bitShiftsInWord < 32);
  if (wordShifts >= 4) {
    zeroClear();
    return;
  }

  final int shiftRestore = 32 - bitShiftsInWord;

  // check this because "123 << 32" will be 123.
  final boolean noRestore = bitShiftsInWord == 0;
  final int roundCarryNoRestoreMask = 1 << 31;
  final int roundCarryMask = (1 << (bitShiftsInWord - 1));
  ....
}
```

Problem 8: 5 points

```
public void logSargResult(int stripeIx, boolean[] rgsToRead)
{
  ....
  for (int i = 0, valOffset = 0; i < elements; ++i, valOffset += 64) {
    long val = 0;
    for (int j = 0; j < 64; ++j) {
      int ix = valOffset + j;
      if (rgsToRead.length == ix) break;
      if (!rgsToRead[ix]) continue;
      val = val | (1 << j);
    }
    ....
  }
  ....
}
```

long(1)<<j

Problem 9: 5 points

```
public void testSignSHA256CompleteEvenHeight2() {
    ....
    int height = 10;
    ....
    for (int i = 0; i < (1 << height); i++) {
        byte[] signature = xmss.sign(new byte[1024]);
        switch (i) {
            case 0x005b:
                assertEquals(signatures[0], Hex.toHexString(signature));
                break;
            case 0x0822:
                assertEquals(signatures[1], Hex.toHexString(signature));
                break;
            ....
        }
    }
}
```

is greater than 1024, won't work

Problem 10: 3 points

```
@Override
public boolean equals(Object o)
{
  ....
  CheckpointStatistics that = (CheckpointStatistics) o;
  return id == that.id &&
    savepoint == that.savepoint &&
    triggerTimestamp == that.triggerTimestamp &&
    latestAckTimestamp == that.latestAckTimestamp &&
    stateSize == that.stateSize &&
    duration == that.duration &&
    alignmentBuffered == that.alignmentBuffered &&
    processedData == processedData &&
    persistedData == that.persistedData &&
    numSubtasks == that.numSubtasks &&
    numAckSubtasks == that.numAckSubtasks &&
    status == that.status &&
    Objects.equals(checkpointType, that.checkpointType) &&
    Objects.equals(
      checkpointStatisticsPerTask,
      that.checkpointStatisticsPerTask);
}
```

Extra problem: The team that does not find it loses 2 points