

```

# function
Toracle <- function(Y, TABLE='data1', k=10, mixedmode=F)
{
  NPOPS<-dim(X)[1]
  if (mixedmode==T)
    ID <- vector(length=NPOPS+NPOPS*(NPOPS-1)/2)
  else
    ID <- vector(length=NPOPS)
  ID[1:NPOPS] <- c(as.matrix(X[,1]))
  X <- X[,2:14]

  if (length(Y)==1)
    Y <- X[which(ID==Y),]
  if (mixedmode==T)
    YDIST<-vector(length=NPOPS+NPOPS*(NPOPS-1)/2)
  else
    YDIST<-vector(length=NPOPS)
  if(mixedmode==T)
    XDIST <- as.matrix(dist(X))
  for (i in 1:NPOPS)
    YDIST[i] <- sqrt(sum((Y-X[i,])^2))
  if (mixedmode==T) {
    COUNT <- NPOPS
    for (i in 1:(NPOPS-1))
      for (j in (i+1):NPOPS) {
        COUNT<-COUNT+1
        if (abs(YDIST[i]-YDIST[j])<XDIST[i,j] & YDIST[i]>0 & YDIST[j]>0) {
          FRAC <- (XDIST[i,j]^2+YDIST[i]^2-YDIST[j]^2)/(2*XDIST[i,j]^2)
          if (FRAC>=0 & FRAC<=1) {
            YDIST[COUNT] <- sqrt(YDIST[i]^2-FRAC^2*XDIST[i,j]^2)
            ID[COUNT] <- paste(round(100*(1-FRAC),1),"% ",ID[i]," +
",round(100*FRAC,1),"% ",ID[j],sep="")
          }
          else
            YDIST[COUNT]<- min(YDIST[i],YDIST[j])
        }
        else
          YDIST[COUNT]<- 100000
      }
    }
  }
  ORDER<-order(YDIST)
  cbind(ID[ORDER[1:k]],round(YDIST[ORDER[1:k]],4))
}

```