

```

binary_search <- function(dataset, keyword, indices) {
  # Sort the data if indices are included
  dataset <- data.frame( "data" = dataset)
  if (!missing(indices)) {
    dataset <- data.frame( "data" = dataset, "indices" = indices)
  }

  for (i in 1:length(dataset$data)) {
    dataset$data[i] <- gsub( " ", "", gsub("'", "", gsub("-", "", tolower(dataset$data[i]))))
  }

  dataset <- dataset[order(dataset$data),]

  # Search
  first <- 1
  last <- length(dataset$data)
  position <- -1
  middle <- 0
  found <- FALSE

  while ((!found) && (first <= last)) {
    middle <- round(abs((first + last) / 2))

    set <- dataset$data[middle]
    key <- gsub( " ", "", gsub("'", "", gsub("-", "", tolower(keyword))))

    if (match_string(set, key)) {
      found <- TRUE
      position <- middle
    } else if (match_string(key, set)) {
      found <- TRUE
      position <- middle
    } else if (set > key) {
      last <- middle - 1
    } else {
      first <- middle + 1
    }
  }

  if (!missing(indices) && position != -1) {
    return (dataset$indices[position])
  } else {return (position)}
}

```