Thompson_Hendley_hw5

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```
## -- Attaching packages -------------------------- tidyverse 1.3.0 --
## v ggplot2 3.3.2      v purrr   0.3.4
## v tibble  3.0.3      v dplyr   1.0.2
## v tidyr   1.1.2      v stringr 1.4.0
## v readr   1.4.0      v forcats 0.5.0
## -- Conflicts ----------------------------- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

1)

```r
#code for question 1
```

2)

```r
mgs <- function(A){
  #skeleton of Q and define a_i
  Q <- matrix(0, nrow = nrow(A), ncol = ncol(A))
  a_i <- A[, i]

  #getting Q
  for(i in seq_along(ncol(Q))){
    Q[, i] <- normalize(a_i)
    #checking for 0 cols
    if(a_i != 0){
      for(j in (i+1):ncol(Q)){
        a_i <- a_i - project_onto(A[j, ], Q[, i])
      }
    }
  }
  discard_zero_cols(Q)
}
```

3)

```r
#code for 3
```

4)

```r
#code for 4
```