```c
#include <stdio.h>
#include <stdlib.h>
#include <cuda.h>
#include <cuda_runtime.h>

int main (void){
  // Declare all variables.
  ...

  // Dynamically allocate host memory.
  ...

  // Dynamically allocate device memory.
  ...

  // Write to host memory.
  ...

  // Copy host memory to device memory.
  ...

  // Execute kernel on the device.
  ...

  // Write device memory back to host memory.
  ...

  // Free dynamically-allocated host memory
  ...

  // Free dynamically-allocated device memory
  ...
}
```