Code:

// Write a program to implement LRU policy and calculate Hit ratio and Miss ratio

```
#include <bits/stdc++.h>
using namespace std;

int main() {
  int num_pages, num_frames, page_faults = 0, hit_count = 0;
  cout << "Enter the number of pages: ";
  cin >> num_pages;
  cout << "\nEnter the number of frames: ";
  cin >> num_frames;

  int reference_string[num_pages];
  cout << "\nEnter the reference string: ";
  for (int i = 0; i < num_pages; i++) {
    cin >> reference_string[i];
  }

  int frame_buffer[num_frames];
  memset(frame_buffer, -1, sizeof(frame_buffer));
  int frame_usage[num_frames];
  memset(frame_usage, 0, sizeof(frame_usage));

  for (int i = 0; i < num_pages; i++) {
    int page = reference_string[i];
    bool page_fault = true;

    for (int j = 0; j < num_frames; j++) {
      if (frame_buffer[j] == page) {
        hit_count++;
        page_fault = false;
        frame_usage[j] = i + 1;
        break;
      }
    }

    if (page_fault) {
      page_faults++;

      int oldest_frame = 0;
      for (int j = 1; j < num_frames; j++) {
        if (frame_usage[j] < frame_usage[oldest_frame]) {
          oldest_frame = j;
        }
      }
```

```
      frame_buffer[oldest_frame] = page;
      frame_usage[oldest_frame] = i + 1;
    }

    cout<<"Blocks: ";
    for (int j = 0; j < num_frames; j++) {
      if (frame_buffer[j] == -1) {
        cout << "- ";
      } else {
        cout << frame_buffer[j] << " ";
      }
    }
    cout << endl;
  }

  float hit_ratio = (float)hit_count / num_pages;
  float miss_ratio = (float)page_faults / num_pages;

  cout << "\nHit ratio: " << hit_ratio << endl;
  cout << "\nMiss ratio: " << miss_ratio << endl;

  return 0;
}
```

Sample Output:

```
Enter the number of pages: 14

Enter the number of frames: 3

Enter the reference string: 0 4 3 2 1 4 6 3 0 8 9 3 8 5
Blocks: 0 - -
Blocks: 0 4 -
Blocks: 0 4 3
Blocks: 2 4 3
Blocks: 2 1 3
Blocks: 2 1 4
Blocks: 6 1 4
Blocks: 6 3 4
Blocks: 6 3 0
Blocks: 8 3 0
Blocks: 8 9 0
Blocks: 8 9 3
Blocks: 8 9 3
Blocks: 8 5 3

Hit ratio: 0.0714286
Miss ratio: 0.928573
```