Code:

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

#include <iostream>
using namespace std;

const int MAX_PAGES = 100;

int main() {
  int pages[MAX_PAGES];
  int n, num_pages, num_hits = 0, num_misses = 0;

  cout << "Enter the number of pages: ";
  cin >> num_pages;

  cout << "Enter the page reference string: ";
  for (int i = 0; i < num_pages; i++) {
    cin >> pages[i];
  }

  cout << "Enter the number of frames: ";
  cin >> n;

  int frames[n];
  int count[n];
  for (int i = 0; i < n; i++) {
    frames[i] = -1;
    count[i] = 0;
  }

  for (int i = 0; i < num_pages; i++) {
    int page = pages[i];
    bool hit = false;

    for (int j = 0; j < n; j++) {
      if (frames[j] == page) {
        hit = true;
        count[j] = 0;
      } else {
        count[j]++;
      }
    }

    if (hit) {
      num_hits++;
    } else {
      int max_count = -1;
```

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      int index = -1;
      for (int j = 0; j < n; j++) {
        if (frames[j] == -1) {
          index = j;
          break;
        } else if (count[j] > max_count) {
          max_count = count[j];
          index = j;
        }
      }

      frames[index] = page;
      count[index] = 0;
      num_misses++;
    }

    cout << "Page " << page << ": ";
    for (int j = 0; j < n; j++) {
      if (frames[j] == -1) {
        cout << " ";
      } else {
        cout << frames[j];
      }
      cout << " ";
    }
    cout << endl;
  }

  cout << "Hit ratio: " << (float)num_hits / num_pages << endl;
  cout << "Miss ratio: " << (float)num_misses / num_pages << endl;

  return 0;
}
```

Sample Output:

Enter the number of pages: 12

Enter the page reference string: 4 3 2 1 4 3 5 4 3 2 1 5

Enter the number of frames: 3

Page 4: 4
Page 3: 4 3
Page 2: 4 3 2
Page 1: 1 3 2

Page 4: 1 4 2
Page 3: 1 4 3
Page 5: 5 4 3
Page 4: 5 4 3
Page 3: 5 4 3
Page 2: 2 4 3
Page 1: 2 1 3
Page 5: 2 1 5
Hit ratio: 0.166667
Miss ratio: 0.833333