Experiment No 8 :Implementing Bloom Filter Algorithm

AIM: To implement BLOOM FILTER algorithm using any programming language.

Code:

```python
#Simple program to implement bloom filter
print("Enter the size of the Bloom Filter :")
bloom_filter_size=int(input())
bloom_filter=[0]*bloom_filter_size

#hash function no 1
def hash1(no1,size):
    return no1 % size

#hash function no 2
def hash2(no2,size):
    return (no2*2+3) % size

print("Lets First Insert data into the filter for query ")
print("How many inserts do you want to perform :")
no_of_insert=int(input())
for i in range(no_of_insert):
    print("Enter the {} no to insert ".format(i+1))
    inst=int(input())
    print("Now hashing the no using two hash functions ")
    h1=hash1(inst,bloom_filter_size)
    h2=hash2(inst,bloom_filter_size)
    print("The result of Hashing using 1st hash algo is ",h1)
    print("The result of Hashing using 2nd hash algo is ",h2)
    print("Updating the Bloom Filter Now ")
    bloom_filter[h1]=1
    bloom_filter[h2]=1
    print("Current Status of bloom FIlter is :")
    print(bloom_filter)

print("Enter how many query you wants to perform :")
no_of_query=int(input())
for i in range(no_of_query):
    print("Enter the {} no to search :".format(i+1))
    srch=int(input())
    print("Now hashing the query element using two hash functions ")
    h1=hash1(srch,bloom_filter_size)
```

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    h2=hash2(srch,bloom_filter_size)
    print("The result of Hashing using 1st hash algo is ",h1)
    print("The result of Hashing using 2nd hash algo is ",h2)
    if bloom_filter[h1] == 1 and bloom_filter[h2]==1:
        print("The srch element may be present !!!!")
    else:
        print("The element is not present in the list  for sure !!!!")
```

Result : You have successfully executed the BLOOM FILTER ALGORITHM using python

Screenshot:

```
The result of Hasing using 2nd hash algo is  0
Updating the Bloom Filter Now
Current Status of bloom FIlter is :
[1, 1, 0, 0, 1]
```

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[7] ▶ print("Enter the size of the Bloom Filter :")...

   ⤷
   ✕  Enter the size of the Bloom Filter :
      Lets First Insert data into the filter for query
      How many inserts do you want to perform :
      Enter the 1 no to insert
      Now hashing the no using two hash functions
      The result of Hasing using 1st hash algo is  4
      The result of Hasing using 2nd hash algo is  1
      Updating the Bloom Filter Now
      Current Status of bloom FIlter is :
      [0, 1, 0, 0, 1]
      Enter the 2 no to insert
      Now hashing the no using two hash functions
      The result of Hasing using 1st hash algo is  1
      The result of Hasing using 2nd hash algo is  0
      Updating the Bloom Filter Now
      Current Status of bloom FIlter is :
      [1, 1, 0, 0, 1]
      Enter how many query you wants to perform :
      Enter the 1 no to search :
      Now hashing the query element using two hash functions
      The result of Hasing using 1st hash algo is  2
      The result of Hasing using 2nd hash algo is  2
      The element is not present in the list  for sure !!!!
      Enter the 2 no to search :
      Now hashing the query element using two hash functions
      The result of Hasing using 1st hash algo is  1
      The result of Hasing using 2nd hash algo is  0
      The srch element may be present !!!!
```

```
[8]  Type code here and press shift-enter to run
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