Karadeniz Teknik Üniversitesi
Bilgisayar Mühendisliği Bölümü
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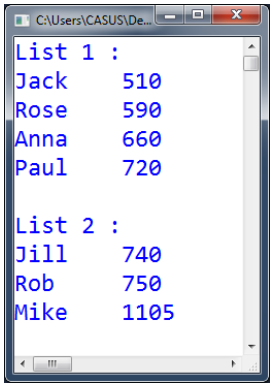
BIL 1052 Veri Yapıları
Arasınav, 12.11.2015, 13:00, D-2, D-9
Süre : **100** Dakika

CEVAPLAR

```
void fList(    DoublyLinkedList* list,
               DoublyLinkedList* list1,
               DoublyLinkedList* list2)
{
  DoublyNode* nodeA = NULL;
  DoublyNode* nodeB = NULL;

  while (!list->empty())
  {
    nodeA = list->header->next;
    nodeB = list->header->next->next;

    while (nodeB != list->trailer)
    {
      if (nodeB->score < nodeA->score)
      {
        nodeA = nodeB;
        nodeB = nodeB->next;
      }
      else nodeB = nodeB->next;
    }

    list1->addBack(nodeA->elem, nodeA->score);

    list->remove(nodeA);

    nodeA = list->header->next;
    nodeB = list->header->next->next;

    while (nodeB != list->trailer && !list->empty())
    {
      if (nodeB->score > nodeA->score)
      {
        nodeA = nodeB;
        nodeB = nodeB->next;
      }
      else nodeB = nodeB->next;
    }

    if (!list->empty())
    {
      list2->addFront(nodeA->elem, nodeA->score);
      list->remove(nodeA);
    }
  }
}

void main()
{
  DoublyLinkedList* list = new DoublyLinkedList();
  list->insertOrdered("Paul", 720);
  list->insertOrdered("Rose", 590);
  list->insertOrdered("Anna", 660);
  list->insertOrdered("Mike", 1105);
  list->insertOrdered("Rob", 750);
  list->insertOrdered("Jack", 510);
  list->insertOrdered("Jill", 740);

  DoublyLinkedList* list1 = new DoublyLinkedList();
  DoublyLinkedList* list2 = new DoublyLinkedList();
  fList(list, list1, list2);

  cout << "List 1 :" << endl; list1->printH2T();
  cout << "List 2 :" << endl; list2->printH2T();
}
```

1. Yandaki programın çıktısı nedir? **(30P)**



```
void insertOrdered(const string& e, const int& i)
{
  CircularlyNode* newNode = new CircularlyNode;
  newNode->elem       = e;
  newNode->score      = i;

  if (cursor == NULL)
  {
    newNode->next     = newNode;
    cursor            = newNode;
    return;
  }

  if( i < cursor->next->score)
  {
    newNode->next     = cursor->next;
    cursor->next      = newNode;
    return;
  }

  if( i > cursor->score)
  {
    newNode->next     = cursor->next;
    cursor->next      = newNode;
    cursor            = cursor->next;
    return;
  }

  CircularlyNode* front      = cursor->next;
  CircularlyNode* back       = NULL;

  while( newNode->score > front->score )
  {
    back = front;
    front = front->next;
  }

  back->next          = newNode;
  newNode->next       = front;
}
```

2. Düğümleri dairesel bağlı listeye **score** değerlerine göre küçükten büyüğe sıralı ekleyen **insertOrdered()** fonksiyonunda **.....** ile temsil edilen satırlara gereken kodları ekleyiniz. **(35P)**

```
void gList(DoublyLinkedList* list,
                DoublyNode* hNext, DoublyNode* tPrev)
{
  if (hNext == tPrev) return;

  if (hNext->next == tPrev)
  {
    list->add(hNext, tPrev->elem, tPrev->score);
    list->remove(tPrev);
    return;
  }
  else
  {
    list->add(tPrev, hNext->elem, hNext->score);
    hNext = hNext->next;
    list->remove(hNext->prev);

    list->add(hNext, tPrev->elem, tPrev->score);
    tPrev = tPrev->prev;
    list->remove(tPrev->next);

    gList(list, hNext, tPrev->prev);
  }
}

void main()
{
  DoublyLinkedList* list = new DoublyLinkedList();

  list->insertOrdered("Paul", 720);
  list->insertOrdered("Rose", 590);
  list->insertOrdered("Anna", 660);
  list->insertOrdered("Mike", 1105);
  list->insertOrdered("Rob", 750);
  list->insertOrdered("Jack", 510);
  list->insertOrdered("Jill", 740);

  gList(list, list->header->next, list->trailer->prev);
}
```

3. a) **gList()** fonksiyonu ne iş yapar? Kısaca açıklayınız. **(15P)**

Fonksiyon baştan ve sondan birer düğümü swap yaparak liste elemanlarını reverse yapar. Yani ters sırada dizer.

b) **if(hNext->next == tPrev){...}** bloğunun alternatifi nedir? **(20P)**

```
if (hNext->next == tPrev)
{
   list->add(tPrev->next, hNext->elem, hNext->score);
   list->remove(hNext);
   return;
}
```