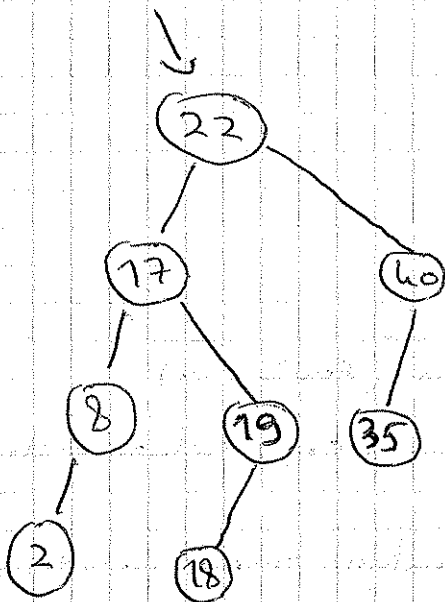


(21/05/2010)

Feen Marc Barbosa n° 54067



```

typedef struct sArvBin
{
  int valor;
  struct sArvBin * esq;
  struct sArvBin * dir;
} *ArvBin, *NodoArvBin;
  
```

```

ArvBin procura (ArvBin a, int n)
  
```

```

if (!a) return a;
else
  if (a->valor == n) return a;
  else
    if (a->valor > n)
      return procura (a->esq, n);
    else
      return procura (a->dir, n);
  }
  
```

```

int efolha (ArvBin a)
{
  return (!a->esq) && (!a->dir) ? 1 : 0;
}
  
```

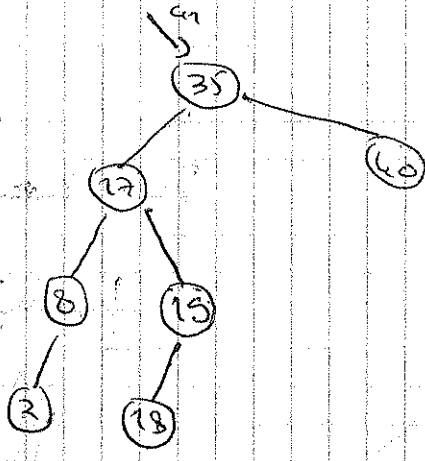
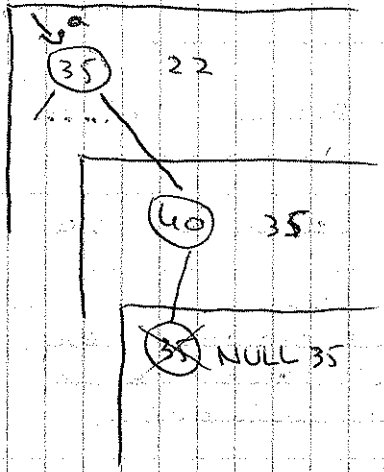
```

ArvBin remNode (ArvBin a, int n)
{
  if (!a) return a;
  else
    if (a->valor == n)
    {
      if (efolha (a))
      {
        free (a);
        return NULL;
      }
      else
      {
        if (a->dir)
        {
          a->valor = menor (a->dir);
          a->dir = remNode (a->dir, a->valor);
        }
        return a;
      }
    }
  }
  
```

```

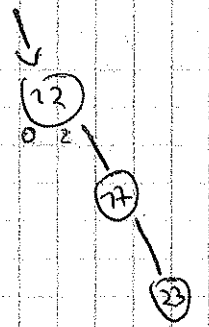
(*) else
  {
    a->valor = maior (a->esq);
    a->esq = remNode (a->esq, a->valor);
    return a;
  }
  else
    if (a->valor > n)
    {
      a->esq = remNode (a->esq, n);
      return a;
    }
    else
    {
      a->dir = remNode (a->dir, n);
      return a;
    }
  }
  
```

```
...
a1 = new Node (a1, 22);
```



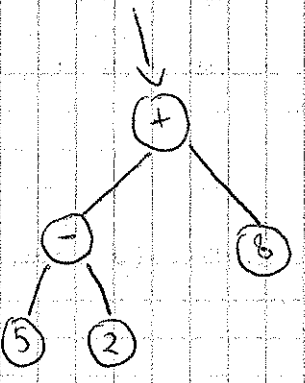
```
int maior (ArvBin a)
{
    if (!a -> dir)
        return a -> valor;
    else
        return maior (a -> dir);
}
```

```
int menor (ArvBin a)
{
    if (!a -> esq) return a -> valor;
    else
        return menor (a -> esq);
}
```



```
int profundide (ArvBin a)
{
    if (!a) return 0;
    else
        1 + max (profundide (a -> dir), profundide (a -> esq));
}
```

```
int ebal (ArvBin a)
{
    if (!a) return 1;
    else
        return (abs (profundide (a -> dir) - profundide (a -> esq)) <= 1)
            && ebal (a -> dir) && ebal (a -> esq);
}
```



```
#typedef struct sExp
{
    int tipo;
    union uValor
    {
        char op;
        int num;
        valor;
    }
}
```