

## Microsoft MusiWave automation developer interview

Date: 16-Jul-2009

Place: Microsoft MusiWave office, Paris

No. of interviewees: 5 (2 from Romania, 1 from Sweden, 1 from St.Petersburg/Russia, 1 from Moldova myself)

Interview type: parallel, circular manner i.e.

- Number of interviewers equal the number of interviewees
- At each round, one of the interviewer tests one interviewees
- After each round, a small break is made when all interviewees are gathered in the common location to refresh themselves and share their experience for 10-15 minutes
- Then next round begins
- In most cases, it all ends when all interviewers met all interviewees

Interviewing time

- for me: from 13:00 ~ 19:30, because I had to interview with a Development Manager/Director
- Interviewing time for others was: 13:00 ~ 18:00

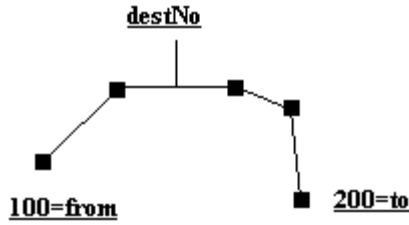
1. Johnston (worked in Kernel-ACPI division)

- optimum way to find a loop in a single linked list
- write function `int drawCircle(int x, int y, in R)`
- how to test this function
  - o output is a list of pixels, check adjacent pixels that are placed in a sorted list (sorted by X or by Y)
  - o visual concentric circles
- optimize the function
  - o go from 0 to R and mirror pixels to the other 3 position (for quadrant 0, down-mirror, left-mirror, diagonal-mirror)
  - o use SIMD to call `drawPixel`
- corner cases for `drawCircle` function
- what are your career goals

2. Emanuel (worked for Microsoft Maps)

- implement `int getAddress(destNo, from, to, points[], pointsCount)` that would return an extrapolated evaluation of where the `destNo` coordinates are. Design the reverse lookup function as

well (i.e. (X,Y)-> to destNo). Example: Points coordinates are (X, Y) and are the black squares, pointsCount for the example is 5. For the example, destNo would be something like 140.



- answer: get total length of the segments, then find the ratio of where destNo (as length from the start) related to the total length.
- we have a maze (Maze[bool]) with a mouse and a cheese, with obstacles. Don't know where initially the mouse and the cheese are, neither where the obstacles are. We have these functions available:
  - init() to initialize the maze with some random arrangement, bool hasCheese() says whether the mouse is in a cell with the cheese, bool Move(Dir dir) which says whether the mouse can move to the specified direction or not (Dir enum={North=0, East, West, South})
    - design/implement algorithm to make the mouse find the cheese
    - answer: either recursive or iterative, mark places were the mouse have already been as delta-direction
- we have a database like system for artist and genre management. Have these two functions GetNextArtist(Artist \*), GetNextGenre(Genre \*). Using these two functions, optimally simulate a join and print the results.
  - test this algorithm/design

Artist			Genre	
Id	Name		Id	Name
1	Artist1		1	Pop
3	Artist2		1	Rock
5	Artist3		2	Bla
			5	Trance
			6	Foo

### 3. Sylvain (lead of 10 person group)

- how to find intersection of two lists of strings
  - list A: dog, burn
  - list B: dog, list
  - answer: use hashmap while traversing lists, increment each hashmap entry -> those with counter > 1 are in the intersection
- design/write a function to reverse a string (hint: watch for wchar\_t cases), test it

- how would you test strcpy(dst, src)
  - o overlap, null pointers, length, null terminated, wchar\_t vs char\_t
- (he opened for himself a MSDN page of stream buffer) draw/design a system of a stream buffer SoundBuffer in DirectX such that the music is never gapped and the file is a big uncompressed WAV not being possible to set into memory

#### 4. Kareen (HR)

- Salary expectations?
- Why leaving current employer?
- Would you move to X?
- What would you implement if Bill Gates gives you 5M\$ and 1 year?
- 6-8 weeks visa
- Stock options

#### 5. Arun (natural languages – translate, etc)

- algorithm insert into a double linked list an element, making sure list always remains sorted
- implement int insert(LL \*head, Data \*d) -> should be int insert(LL \*\*head, Data \*d)
- test function bool isPalyndrome(wchar\_t \*str)
- test insert function above
- list/describe types of test cases for isPalyndrome function

#### 6. Daniel – Director of Dev & Oper, lead the MediaCenter project in US

- why leave current employer?
- what makes you feel you fit this job?
- how would you test?
- why methodology is good?
- what other types of test are there except functional tests?
- how would you automate testing mobiles?
- how would you design testing framework:
  - o framework (how)? – answer: abstractization
  - o as a tool/script?
- what is impact on performance testing by computer on mobiles? (answer: testing itself)
- why need testing anywhere? Maybe need just good programs?