Practical 3A – CS414

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1.1

Specifications are more specific and precise in what they describe in comparison to the requirements which are just what the client wants from the designer in vague detail.

1.3

An example requirement could be the size of the physical sensor or its resolution.

1.12

Top down design is designing from the most abstarct version of the requirements and refining it until there are concrete details available. Bottom up begins with components and main ideas to be used and progresses to a bigger picture.

2.2

The Harvard architecture is based on the idea of having the program and data memory on physically different chips. The von Neumann architecture uses one physical chip to hold both data and the instructions – the adresses of each section are known to begin and end at set points.

2.4b

0xFFFFFFFF + 0x00000001 = 0x00000000 with NZCV = 0111

0x00000000 – 0x00000001 = 0xFFFFFFFF with NZCV = 1011

2.6

Branch with link – causing a branch to a specific label in the code. Before branching the value of PC is stored in r14. If you wish to once again use the value that is now in r14 you can move it to r15 to jump back to the prior state.

2.9

NEON provides additional registers and operations. (32 registers each 64b wide). Jazelle allows for direct execution of Java bytecodes – hence no interpereter is required. These both improve on the basic instruction set as they might save space on the chips and allow for larger data valies.

7.1

In the waterfall model is mostly linear in one direction from high levels of abstractions to a refined result with very minimal feedback to higher levels. The Spiral model rather focus on having having a decent mix of requirements, testing and designing in each phase of the project, then only progressing to the next stage.

7.2

Experience in the correct fields such as software design, telecommunications for the antennae and signal processing and electrical engineers for the board design with DRM and processor selections.

7.5

The design team prepares documents used to describe the component. These documents are distributed to other members of the review team to allow everyone to be on the same page. A meeting will then be set. Often top down design is used in meetings by the designers to fix bugs. The audience should look for problems at any stage of the explanation by the designer. After the meeting, the notes will be used to correct any errors and the designers will keep a log of all changes. After this the process essentially repeats by the designers now using their updated version of the component with descriptions of all their changes.