1. Please explain how to transform an assembly language program into a binary executable file using basic reference tables.

Assembly language program into a binary executable file using instruction set documentation. For example:

ADDLW **Add Literal and W**

Syntax:	[*label*] ADDLW k
Operands:	$0 \le k \le 255$
Operation:	$(W) + k \rightarrow W$
Status Affected:	C, DC, Z
Encoding:	11 | 111x | kkkk | kkkk
Description:	The contents of the W register are added to the eight bit literal 'k' and the result is placed in the W register.

The “encoding” line tells what the instruction looks like in binary. In this case, it always starts with 5 ones, then a dot’t care bit, then the ‘k’s stand for the literal you are adding.

The first few bits are called an “opcode”, are unique for each instruction. The CPU basically looks at the opcode to see what instruction it is, then it knowns to decode the “k”s as a number to be added.

2. Please explain the formats of the different types of data
   1) Image:
   Use the image datatype to store larger blocks of binary data on external data pages. An image column can store up to 2,147,483,647 bytes of data on linked lists of data pages separate from other data storage for the table.
   2) Video:
   Flash video format (.flv)
   Flash video is playable within Flash movies files, which are supported by practically every browser on every platform. Flash video is compact, using compression from On2, and supports both progressive and streaming downloads.
   AVI format (.avi)
   The AVI format, which stands for audio video interlace, was developed by Microsoft. It stores data that can be encoded in a number of different codec’s and can contain both audio and video data.
   QuickTime format (.mov)
   The QuickTime format was developed by Apple and is a very common one. It is often used on the internet, and for saving movie and video file. The format contains one or more tracks storing video, audio, text or effects. It is compatible with both Mac and Windows platforms, and can be played on an Apple Quicktime player.
   MP4 format (.mp4)
   This format is mostly used to store audio and visual stream online, most commonly those defined by MPEG. It Expands MPEG-1 to support video/audio

'object', 3D content, low bit rate encoding and support for Digital Rights Management.

3) Audio

An audio file format is a file format for storing digital audio data on a computer system. The bit layout of the audio data (excluding metadata) is called the audio coding format and can be uncompressed, or compressed to reduce the file size, often using lossy compressin. The data can be a raw bitstream in an audio coding format, but it is usually embedded in a container format or an audio data format with defined storage layer.

4) Alphanumerical

Alphanumeric is a description of date that is both letter and numbers. For example, "1a2b3c" is a short string of alphanumeric characters. Alphanumeric is commonly used to help explain the availability of text that can be entered or used in a field such as an alphanumeric password.

5) Integers

an integer is a datum of integral data type, a data type that represents some range of mathematical integers. Integral data types may be of different sizes and may or may not be allowed to contain negative values. Integers are commonly represented in a computer as a group of binary digits (bits). The size of the grouping varies so the set of integer sizes available varies between different types of computers. Computer hardware, including virtual machines, nearly always provide a way to represent a processor register or memory address as an integer.

6) Floating point numbers

Floating-point numbers are numbers that have fractional parts (usually expressed with a decimal point). You should use a floating-point type in Java programs whenever you need a number with a decimal, such as 19.95 or 3.1415.

Reference:

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5. Doug Lowe (2014, July 23). Floating point data type in Java. Retrieved from https://www.dummies.com/programming/java/floating-point-data-types-in-java/