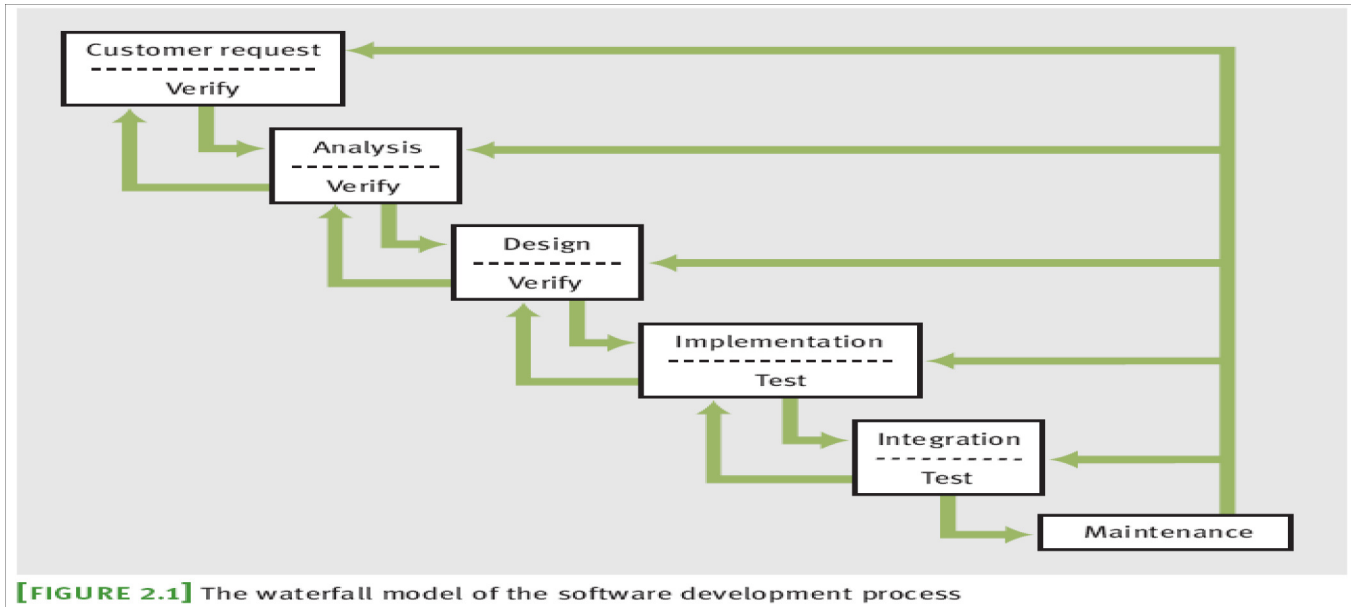
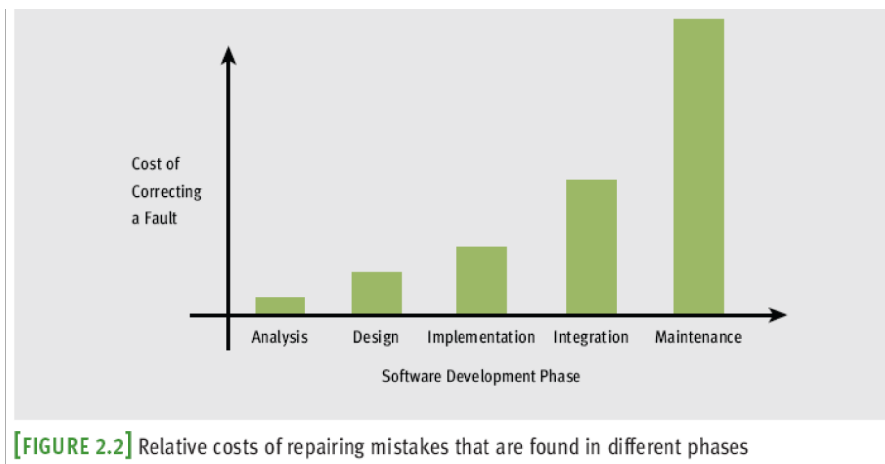


1) One approach to software development is the waterfall model:



a) Why not start by writing the program in the Implementation phase?

b) Why is it important to “Test” (run the program with real data for input) during the Implementation and Integration phases?



c) Why is it so expensive to fix a error during the maintenance phase?

2) Complete the following table.

	Decimal (Base 10)	Binary (Base 2)
Number of digits:	10	
Digits:	0, 1, 2, 3, 4, 5, 6, 7, 8, 9	
Counting:	0	
	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	
	13	
	14	
	15	
16		
17		

3) Convert 173_{10} to a binary (base 2) value.

4) ASCII Character Representations are below. What do you notice about the following sets of characters:

	0	1	2	3	4	5	6	7	8	9
0	NUL	SOH	STX	ETX	EOT	ENQ	ACK	BEL	BS	HT
1	LF	VT	FF	CR	SO	SI	DLE	DCI	DC2	DC3
2	DC4	NAK	SYN	ETB	CAN	EM	SUB	ESC	FS	GS
3	RS	US	SP	!	"	#	\$	%	&	`
4	()	*	+	,	-	.	/	0	1
5	2	3	4	5	6	7	8	9	:	;
6	<	=	>	?	@	A	B	C	D	E
7	F	G	H	I	J	K	L	M	N	O
8	P	Q	R	S	T	U	V	W	X	Y
9	Z	[\]	^	_	'	a	b	c
10	d	e	f	g	h	i	j	k	l	m
11	n	o	p	q	r	s	t	u	v	w
12	x	y	z	{		}	~	DEL		

[TABLE 2.5] The original ASCII character set

a) Upper-case letters:

b) lower-case letters:

c) digits:

d) nonprintable characters:

5) Many of today's systems embrace Unicode, a 16-bit system that can encode the characters of every language in the world. All printable ASCII characters have the same numeric value in Unicode. What would be the 16-bit binary value used to represent 'A'?