Experimental test scenario	Developer — St 1				St 2				St 3				St 4				Models — ChatGPT 4					Gemini 2.0 Flash					DeepSeek-V3					Claude 3.5 Sonnet					GitHub Copilot (GPT-4o)					LLaMA 3				
	NLOC	CCN	token	length	NLOC	CCN	token	length	NLOC	CCN	token	length	NLOC	CCN	token	length	NLOC	CCN	token	length	#Att	NLOC	CCN	token	length	#Att	NLOC	CCN	token	length	#Att	NLOC	CCN	token	length	#Att	NLOC	CCN	token	length	#Att	NLOC	CCN	token	length	#Att
Newline printing	7	2	24	7	7	2	24	7									6	2	23	6	1	5	2	23	5	1	8	3	46	8	2	5	2	23	5	1	5	2	23	5	2	5	2	23	5	1
Strings merging	8	2	41	8	8	2	41	8									7	2	43	7	1	24	5	140	22	1	10	2	70	14	1	10	2	58	13	1	11	2	58	15	1	7	2	36	8	1
Merging strings with other data types	8	2	41	8	8	2	44	8									8	2	43	8	1	34	7	194	36	1	10	2	64	14	1	12	2	71	17	1	10	2	58	14	1	7	2	36	8	1
String to char array conversion	10	3	72	10	10	3	72	10									8	2	53	8	1	14	4	94	19	1	8	2	53	12	1	8	2	47	11	1	9	2	53	12	1	10	3	71	10	2
Char array to string conversion	7	2	39	7	9	3	59	9									7	2	40	7	1	10	3	53	13	1	7	2	36	9	1	7	2	40	9	1	8	2	39	12	1	7	2	37	8	1
Finding text in a string	32	7	137	34	20	5	113	23									11	3	58	12	1	40	12	211	47	1	12	3	58	13	1	14	4	66	15	1	12	3	58	13	1	16	5	90	16	3
Evaluating fixed values	10	4	61	10	10	4	64	10									9	3	28	9	1	17	5	78	17	1	17	6	72	20	1	13	3	64	13	1	16	4	63	16	1	9	3	36	9	1
String manipulation using buffers	10	2	50	10	9	2	43	9									9	2	39	11	1	22	5	152	32	1	9	2	53	13	1	9	2	41	11	1	10	2	41	13	1	9	2	41	11	1
Using F() macro with strings	7	2	33	7	7	2	30	7									7	2	38	7	1	16	5	67	19	1	12	3	67	12	3	9	2	37	13	1	maximum number of attempts				5	7	2	27	7	2
Storing text values in arrays	13	2	46	13	13	2	48	13									6	2	46	7	1	21	5	70	26	1	6	2	46	8	1	6	2	46	8	1	7	2	46	9	1	6	2	46	7	1
String constant variables	5	2	24	5	6	2	30	6									6	2	31	7	1	16	5	67	20	1	6	2	32	9	1	6	2	31	8	1	7	2	31	10	1	6	2	31	7	1
Using break statement in sequential search	20	5	82	20	17	5	78	17									13	5	90	16	1	maximum number of attempts				5	14	5	97	18	1	14	5	97	17	1	19	5	109	23	1	maximum number of attempts				5
Static vs. non-static variables	9	3	77	9	9	3	75	9									10	3	75	13	1	14	4	104	18	1	10	3	87	14	1	11	3	93	14	1	13	3	100	17	1	11	3	93	13	1
Global vs. local variables	13	4	56	13	13	4	104	13									10	3	52	14	1	18	5	129	21	1	10	3	63	15	1	11	3	47	14	1	13	3	100	17	1	9	3	52	14	1
2D array initialization	10	4	89	10	12	6	115	12									13	4	90	17	1	18	5	109	23	1	14	4	100	18	1	15	4	76	19	1	17	4	109	22	1	19	6	113	25	1
Column-major order vs. row-major order	7	4	61	7	7	4	61	7									10	4	68	13	1	12	4	73	29	1	10	4	71	12	1	12	4	59	15	1	14	4	65	15	2	13	4	59	16	1
Array access: pointers vs. indexes	11	4	80	11	13	5	104	13									18	4	89	21	1	19	5	108	26	1	12	3	70	16	1	12	3	54	16	1	16	4	95	23	1	15	4	80	21	1
Data structures: arrays vs. structures	16	4	115	17	18	3	101	18									18	3	101	23	1	22	4	101	28	1	19	3	107	24	1	19	3	90	25	1	23	4	130	31	1	19	4	111	23	1
Accessing structure elements	10	2	38	10	11	2	47	11									11	2	44	14	1	16	3	66	21	1	11	2	44	14	1	maximum number of a				5	13	2	51	17	1	10	2	44	13	1
I/O pins manipulation	6	2	30	6	6	2	31	6									6	2	31	7	1	8	2	31	9	2	7	2	36	7	1	7	2	31	13	2	9	2	42	11	1	8	2	36	9	1
I/O pins directions	12	2	66	12	6	3	57	6									6	3	33	8	1	5	2	14	6	1	6	3	33	7	1	5	2	14	7	2	7	3	33	9	1	6	3	33	6	1
Macros vs. functions	7	2	34	7	10	2	34	10									6	3	37	7	1	14	5	78	17	1	6	3	37	8	1	9	3	49	17	2	10	3	54	13	1	8	3	47	8	1
Function calls: direct vs. indirect	10	3	49	10	12	3	66	12									9	3	49	9	1	14	4	72	17	1	9	3	49	10	1	10	3	49	17	1	11	3	56	11	1	9	3	49	9	1
Built-in functions vs. libraries	8	2	39	8	10	2	50	10									7	2	34	8	1	12	3	41	11	2	7	2	34	7	1	8	2	36	16	1	11	2	54	19	1	8	2	26	5	1
Loop breaks	7	3	61	7	7	3	60	7									8	3	62	10	1	11	4	84	14	1	8	3	66	10	1	11	3	77	16	2	10	3	79	14	1	8	3	43	8	1
Loop rolling vs. loop unrolling	14	4	114	14	10	4	78	10									11	3	65	15	1	15	4	81	20	1	12	3	71	16	1	12	3	63	20	2	14	3	78	20	1	8	3	43	8	1
Data types selection	10	4	78	10	10	4	78	10									11	3	67	15	1	10	3	50	13	1	12	3	71	16	1	12	3	63	20	2	14	3	78	20	1	10	3	59	13	1
Compound assignment operators	9	2	39	9	9	2	43	9									8	2	37	10	1	18	4	117	26	1	8	2	46	12	1	9	2	46	13	2	9	2	37	12	1	11	2	58	13	2
Fading LED	23	6	91	23	16	4	78	16									14	4	73	18	2	13	4	73	17	4	13	4	73	14	2	14	4	73	18	2	14	4	73	17	2	14	4	73	17	2
Conditional statements: nested -if vs. switch	28	8	130	28	27	8	132	27									19	5	122	21	1	19	5	96	22	2	24	5	91	28	1	24	5	97	31	1	22	5	82	28	1	24	7	105	25	1
Program pausing	9	2	41	9	11	3	55	11									7	2	36	7	1	8	2	36	8	2	8	2	36	9	1	8	2	43	9	2	8	2	36	10	1	8	2	36	9	1