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These puzzles were part of a set presented at the Advanced Placement Computer Science A grading session in Kansas City, MO in June 2023. Each puzzle leads to a one-word answer whose length is given in parentheses following the title. Save your answers from this month's puzzles to use in a later edition of *Inroads*.

Recursion (4)

Where have I heard that before?

* *, HERE _ GO AGA_N
_Y, _Y, HOW CAN _ RES_ST YOU?
* *, DOES _T SHOW AGA_N
_Y _Y, JUST HOW _UCH _'VE _SSED YOU?

M_STER *, S_R, H_VE _ W_SH OR TWO OR THREE
_ 'M ON THE JOB, YOU B_G N_BOB
YOU _N'T NEVER H _ _ FR_EN _ _KE...ME!

SW_TCH_NG UP THE FLOW
AS WE ADD THE PREF_
EVERYBODY KNOWS THAT
WE USED TO BE * W_VES

L_T US B _GRAT_FUL
L_T US R_JO _FY THAT GOO_N_SS _OUL_ SUB_U
TH _ * WOR_NGS OF YOU-KNOW-WHO

BU _WHO _S _H_S _S_N _ *?
WHY _LL _H_S HOWL_NG, HYS_ER_C_L SORROW?
WH _K_ND OF GODDESS H_S L_ED _MONG US?

* *,
W _' _B _ _W_Y TOO OUT OF TOUC_
T_I_GS _ _B _ _CR_ZY _ _IT _UCK _T _T W _ _O _'T T_LK TH _T MUC_
_LC _ _T _TH _ _CK_I _ _U * *,
_U'LL P _B _BL _UND _ST_ND _B _UT H _L _ _H _T _ _S _.

_Y _ _E _S _EX _DER _*.
_D _ERE'S _ _ _O _ _GS _ _VE _' _DO _E.

* *,
A _D _R _UG _ _ _R _
_ _ _R _ _AM
_XP _C _D MA'AM,
* *,
_ _GRA_DM _ _R' _ _U _ _

_ _S A GRAD _A _E OF _ _ _ARD!
HE _AN HE_P
WE FO_ND H _M ON YE_P
OUR _RO _ES A _ _ENDED ON _HE DAY _HA _WE _EFR _ENDED H _M
EVERY WORD _S _HE _R _H
*, *, *

Object Orientation (4)

Possible in-class movie: Inherit The Wind

Arrange each set of four 2x2 blocks into the grid below them to spell eight different common four-letter words reading across and down. Some blocks need to be rotated; letters should always be oriented right-side-up. For example, if

A B
C D

is rotated one turn clockwise, the letters would be:

C A
D B

When you've finished, look at the upper-left corners for your answer.

1	2	3	4
AC AD EN EN SI TS MO RG	AL AR EE OT PA MB HT TS	DI DO EN EN IR EL ST VO	AP AS AT BS NE RE EN EE
<div></div>	<div></div>	<div></div>	<div></div>
<div></div>	<div></div>	<div></div>	<div></div>
<div></div>	<div></div>	<div></div>	<div></div>
<div></div>	<div></div>	<div></div>	<div></div>

As a hint to the placements, the last across words formed in each grid could be clued by:

- Earns or grabs
- Monthly expense, for some
- Non-human construction
- Something seen in a graveyard

Answers to the AP CS Puzzles from the December issue of ACM INROADS.

Linked Lists

The answers to each set of clues can be linked in such a way so that the last letter of one word is the first of the next word. These link letters spell the name of a color with one letter missing. The lost letters appropriately spell **RAINBOW**.

RED	WHINENGLANDREAM (DREAM, ENGLAND, WHINE)
ORANGE	LIMBOTHERESINAMINGRAZELEVATOR (ELEVATOR, GRAZE, LIMBO, NAMING, OTHER, RESIN)
VIOLET	MAGLEVIRGOFFICIALLANGUAGELEPHANTTRANSPORTER (ELEPHANT, LANGUAGE, MAGLEV, OFFICIAL, TRANSPORTER, VIRGO)
GREEN	SWINGGOVERNORIBOSOMELEGANCEENERGY (ELEGANCE, ENERGY, GOVERNOR, RIBOSOME, SWING)
BLUE	WINDMILLUURSINEAGLE (EAGLE, LUAL, URSINE, WINDMILL)
INDIGO	OCTOPRODUCTIONOMADAOUIRINGELATIN (DAIQUIRI, GELATIN, ICING, INDUCTION, NOMAD, OCTOPI)
YELLOW	BIOLOGYARMULKENAMELIBRETTIOCTAGON (BIOLOGY, ENAMEL, LIBEL, LIBRETTO, OCTAGON, YARMULKE)

Binary Search

Each image is somehow related to the number two:

BIG BUSINESS (movie with 2 pairs of twins)
CYMBALS (a pair)
DUEL
PARALLEL BARS (two of them)
SECOND BASE
TWO-FACE

The pairs of binary numbers are ASCII values for characters:
N space
W -
D E
M A
A L
N S

Find the letter between those characters in each answer:
SECOND_BASE
TWO-FACE
DUEL
CYMBALS
PARALLEL BARS
BIG BUSINESS

The in-between letters spell **DOUBLE**.