Table 1: Student Data

Name	**Division**	**MIS**	**Year of Birth**	**Branch**
Abhinav	8	112103004	2002	Computer
Akshay	1	112105002	2002	Instrumentation
Kevin	9	112107035	2003	Electrical
Rakesh	6	112106071	2003	Electronics
Aakash	3	112102009	2004	Civil

Table 2: Movie preferences

Name	**Genre**	**Fav. Actor/Actress**	**Fav. Film**
Snehasish	Suspense,thriller	Benedict Cumberbatch	Manchester by the sea,Whiplash
Sahil	Rom-coms	Shahrukh Khan	DevDas
Indraneel	Sci-Fi	Tom Cruise	Arrival
Bhavika	Action	Keanu Reeves	John Wick

Section : Matrix Applications

1. Find the rank and bases for the row and column spaces of following matrices:
$$A = \begin{pmatrix} 1 & 3 & 4 \\ 2 & -6 & 9 \\ 2 & -6 & 9 \\ -1 & 3 & -4 \end{pmatrix}$$

2. Show that the three points $(x_1, y_1), (x_2, y_2), (x_3, y_3)$ in a plane are collinear if and only if the following matrix has rank less than 3.

$$M = \begin{bmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{bmatrix}$$

3. Determine whether B is in the column space of A, and if so, express B as a linear combination of the column vectors of A:
$$A = \begin{pmatrix} 1 & 1 & 2 \\ 1 & 0 & 1 \\ 2 & 1 & 3 \end{pmatrix}, B = \begin{pmatrix} -1 \\ 0 \\ 2 \end{pmatrix}$$

Section : Figure Insertion

Figure 1: Leisure Strolling

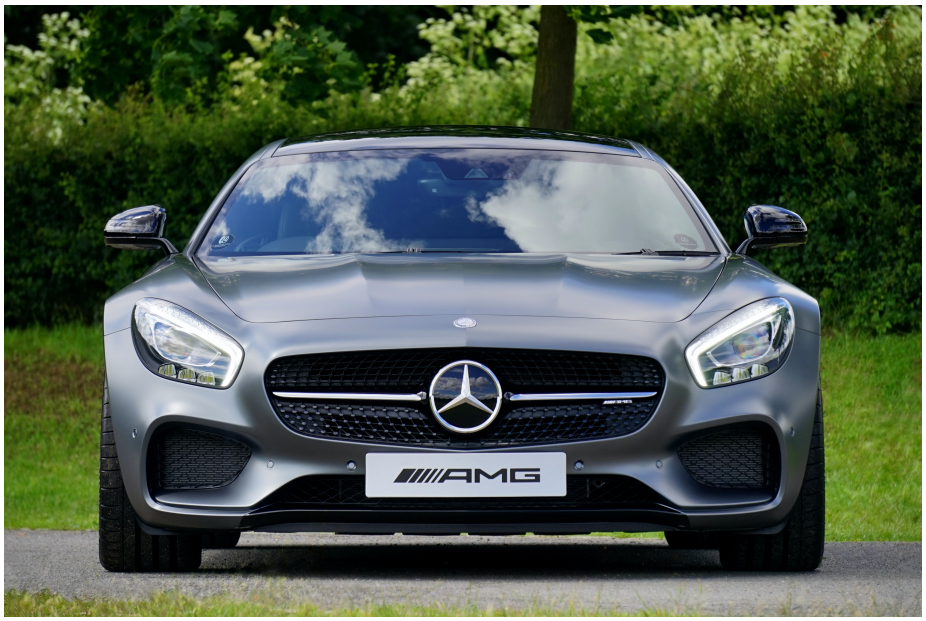

Figure 2: AMG

”what”	”diameter”	”moving”	”nearly”	”has”	”bag”
”them”	”military”	”diameter”	”dangerous”	”beautiful”	”had”
”look”	”invented”	”factor”	”before”	”cause”	”recent”
”pipe”	”you”	”blind”	”carbon”	”rough”	”excellent”
”realize”	”blood”	”running”	”watch”	”production”	”mix”
”gate”	”pure”	”character”	”blue”	”mountain”	”hunt”
”piano”	”hurry”	”therefore”	”elephant”	”lunch”	”combine”