# Model Development Phase Template

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| Date | 10 July 2024 |
| Team ID | SWTID1720162737 |
| Project Title | Predicting Compressive Strength Of Concrete Using Machine Learning |
| Maximum Marks | 5 Marks |

## Feature Selection Report Template

In the forthcoming update, each feature will be accompanied by a brief description. Users will indicate whether it's selected or not, providing reasoning for their decision. This process will streamline decision-making and enhance transparency in feature selection.

| Feature | Description | Selected (Yes/No) | Reasoning |
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| Cement | Binding agent in concrete, directly influences strength development | Yes | A major factor in predicting the strength of concrete. |
| Blast furnace slag | Industrial byproduct that can partially replace cement, reducing cost and environmental impact. May influence strength depending on slag type and content. | Yes | Can enhance strength and sustainability, depending on its type and content. |
| Fly ash | Finely divided byproduct of burning coal, improves workability and can contribute to strength development in some concrete mixes. | Yes | Enhances workability and may contribute to strength in specific mixes. |

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| Water | Essential ingredient for concrete hydration, critical for strength development. Too much water weakens the concrete. | Yes | Crucial for hydration, directly impacts strength. |
| Superplasticizer | Chemical admixture that improves workability without affecting water content, potentially allowing for higher strength. | Yes | Improves workability and can lead to higher strength without extra water. |
| Coarse aggregate | Larger inert particles (gravel, crushed rock) in the mix, contribute to strength and dimensional stability. | Yes | Provides structural stability and contributes to overall strength. |
| Fine aggregate | Smaller inert particles (sand) that fill gaps between coarse aggregate, influencing strength and workability. | Yes | Fills voids and improves strength and workability. |
| Age | Maturity of the concrete specimen. Concrete compressive strength increases over time as hydration progresses. | Yes | Strength increases with age, crucial for understanding strength development over time. |
| Concrete compressive strength | The maximum stress that concrete can withstand before failure in compression. | Yes | This is the variable the model aims to predict. |